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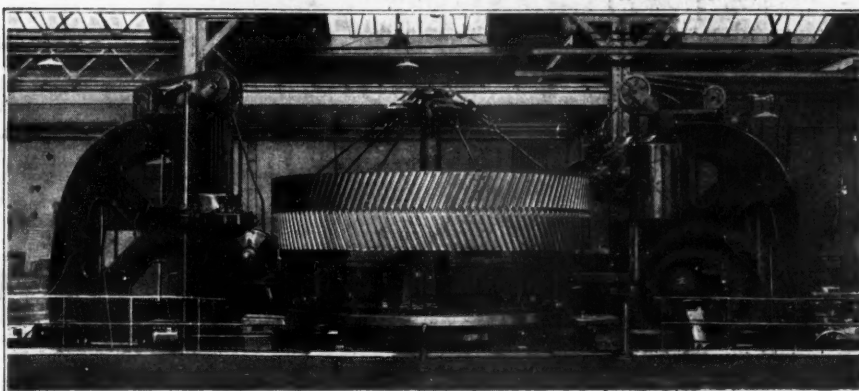
COAL AGE

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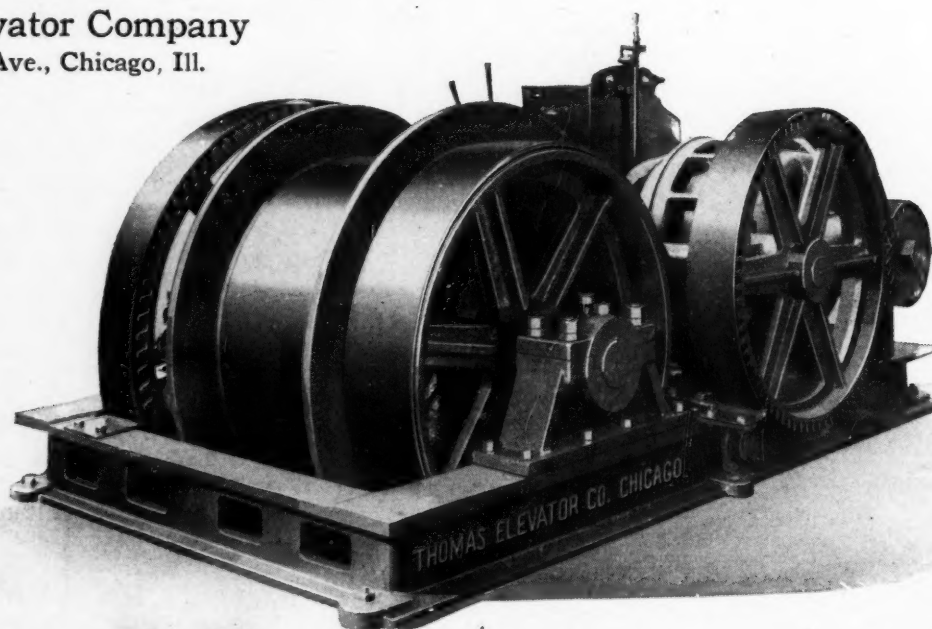
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COAL AGE

The Only National Paper Devoted to Coal Mining and Coal Marketing

C. E. LESHER, Editor

Volume 24

NEW YORK, OCTOBER 4, 1923

Number 14

The Strike That Failed

HISTORY probably never recorded a bigger strike than that staged by Germany in the policy of passive resistance in the Ruhr. For eight months a whole industrial population has been on strike and has been receiving strike benefits from headquarters. The Ruhr is the densest, most active mining and manufacturing area in Europe, and when last January the French began to encircle it with troops and sought to turn its products to payments on reparations the world was circled with the phrase "You can't mine coal with bayonets."

The French did not mine coal with soldiers but they did wear out the resistance of their opponents. The Berlin government could not print paper marks fast enough or the trains run often enough to take them into the Ruhr to maintain the strike benefits. The passive resistance has been declared a failure. The greatest strike has been crushed, and with a minimum of bloodshed. Strikes, even large ones, can be won in opposition to determined, organized, well-financed forces, providing there is unity on the other side.

Premier Poincare united his side by assuming an aggressive policy and by controlling the policy of his nation. One may wonder how the coal strike in this country would have ended in 1922 had the operators all been following one leader and he been aggressive.

"Dear Governor Pinchot"

FIRST it was the Governor of Massachusetts, then the Governor of New Jersey and now it is the Governor of New York that is dictating this line, following it with his compliments on the anthracite settlement. If they don't stop plaguing him Pinchot will hate the sight of a crested letterhead.

On Sept. 10 the Governor of Pennsylvania wrote to the executive heads of all the anthracite-consuming states modestly calling attention to the fact that "by a slight wage increase the production of anthracite is now assured for two years," and suggesting that these several other governors look to it that the increase in wage cost was not passed on to the consumers in these other states. Pinchot admitted to "a special responsibility on himself in this matter" of seeing that consumers everywhere are not "gouged."

Governor Smith is meekness itself. He would not for a moment question the action of the Governor of Pennsylvania, where the coal is produced, of granting more wages to the miners "if in your opinion this was necessary." "But"—O! the suavity—"I do not believe that any public official should lead the people to believe, or attempt to lead the people to believe [italics ours], that the price of producing any commodity can be increased without increasing the cost to the ultimate consumer, unless profiteering can be proven." And then

the stinger—"Have you any evidence of profiteering so far as your state is concerned?"

Mr. Pinchot is reminded that if, as he wrote President Coolidge, some operators could absorb all the increase and yet make a profit, then "in the discharge of the special responsibility" which he acknowledges, he should make them do it. He is asked whether from his "intimate knowledge" of the coal business and the experience he "must have gained in the recent settlement" he has been able to gain any information from the report of the Hammond Coal Commission. Governor Smith seems to think that he has not.

Mr. Smith, like the other governors, recalls that the State of Pennsylvania has itself added to the cost of coal, as he puts it, "by the tax imposed at the mines and the addition of 50c. a ton imposed by the State of Pennsylvania upon production," and "now the settlement of the coal strike giving a further increase of 60c. a ton has made you assume the responsibility for these additions to the cost of coal to the consumer." Not just "Robbing Peter to pay Pinchot," as the *Wall Street Journal* aptly put it, but to pay Pennsylvania as well.

My Dear Governor Pinchot—"It seems clear to me that the duty and responsibility rests upon you and the State of Pennsylvania." And as an aside, not for publication of course, "As between aspirants for Presidential honors, now really don't you think it an awful blunder to raise the price of such a common necessity and then advertise it to the voters?"

The Mining Congress' Future

THE impression should not get abroad that the American Mining Congress is about to collapse for want of proper support. It is true that the convention of the Congress last week in Milwaukee drew a small attendance, that some of the scheduled meetings of minor divisions did not take place, and that part of the program lacked virility. But the Congress performs other services to the mining industry than merely to hold conventions and machinery exhibitions. As discreet and well-informed spokesmen for the mining industry in public places, the men representing the Congress are valuable. Their services should continue—and will—in spite of the fact that the organization has a hard time making ends meet, though the receipts for the past year totaled close to \$200,000.

The proposal to hold separate Congress conventions for coal- and metal-mining groups hereafter is a plan with obvious advantages and might prove successful even though a certain division of strength and lack of unity within the organization is almost sure to develop. It certainly is logical to assume that a convention held in some important coal center, with a program concentrating on coal and with an exhibition restricted to machinery used in coal mining and preparation, should

awaken more enthusiasm among coal men and exhibitors than one essaying to cover all mining. It is just as logical to assume the same thing for the metal-mining industry.

In recent years the Congress' meetings have held more of interest for coal men than any other class engaged in mining. The three most recent conventions have been close to the centers of coal mining. Yet coal men's interest has flagged. It needs stimulation. The Congress should be able to make itself a valuable clearing house for ideas about operation in coal. No other national organization is in a better position to do it. If the men at the helm within the Congress will devote themselves to developing a three-days' convention of discussion really vital to coal, and if the key men in coal will awake to the possibilities in such work for the improvement of the industry, then future conventions of the American Mining Congress will again become noteworthy.

What Do Miners Earn?

ON THIS question, around which such heated controversy raged in 1922, there is now a wealth of precise information. There is so much information, we fear, that the controversy is likely to break out afresh, unless the unfinished work of the Coal Commission is properly carried to a conclusion.

The report of the Coal Commission on Earnings of Mine Workers in the Bituminous-Coal Industry has just been published. It is a voluminous document, but not more so than the subject demanded. It represents the analysis of earnings of 332,668 mine workers in the soft-coal fields at 1,177 union and 751 non-union mines in 23 coal-producing states in 1921, with supplemental comparison of earnings of a smaller number in 1920. The report is a veritable mine of information, representing a more complete, comprehensive, scientific analysis of earnings of a larger number of employees than has ever been produced by any other investigation for any industry in this country.

Too much credit cannot be given the statistical experts who have given us this mine of information on earnings. There will be some, no doubt, who will assail the report as too scientific, too technical. In so far as this is true, it is the fault of the Commission, not those who prepared the report. The only credit that attaches to the Commission is for selecting highly competent people to do the work, a purely technical and very complicated job.

There seems to have been considerable misapprehension on the part of the Coal Commission as respects its duty and responsibility here. Appointed as a public body to report to the President and the Congress—that is, to the people; “in the public interest,” as it were—on the coal industry, this Commission assembles data on what the mine workers earn. The public is interested. It is curious to know what an impartial investigation of the miners' pay checks shows—how large they are, whether they are ample to give the worker and his family a decent living and how the earnings of these mine workers compare with earnings of workers in other industries. But the public is not told. The curtain is drawn over the results of this exhaustive study.

The Coal Commission takes the staff report, claps on a preface of three paragraphs, adds its signatures at the end and the incident is closed. It says that

in a study of earnings in so vast and so widely scattered an industry as bituminous-coal mining and one reflecting such a wide variety of both physical and social conditions, “it is not possible to give, in a few lines, figures or averages that are either typical or honestly representative.” Thus forwarned, who will dare generalize from this report! Continuing, “Nothing is to be gained in either accuracy or truthfulness of presentation by endeavoring to make appear simple that which is essentially complex. Such an effort merely blurs the picture and misleads the reader.”

The Commission goes on to say that the staff report here presented has not been “prepared for the casual or hurried reader, but for the serious student who desires to study all the elements in the industrial situation.” We concur. But what was the matter with these Commissioners—were they not the public's “serious students?” What was this Coal Commission for if not to “study all the elements in the industrial situation that characterizes the coal industry”? The Commission is convinced that the method of presentation here adopted is one that furnishes the basis for a series of enlightened studies that will go far “to stabilize and improve the labor conditions in this great basic industry” and to make it “a desirable social as well as industrial asset”—they might have had grace enough to say *more* desirable. This “rich mine” of statistics on earnings is bequeathed for exploitation by “competent students of our industrial and social problems.”

Dear Public, it is not for you to inquire what miners earn, whether they are well paid or poorly paid, whether their scale of wages and earnings thereunder is too high, and hence not in the public interest, or too low, also not in the public interest. Stand by and let competent students interpret this report on earnings for us!

To a subcommittee, Commissioners Neil and Devine, were assigned the studies of labor, including that on earnings. They are now confessing indifference or incompetence, or lack of desire to tell the American people in words of few syllables that the soft-coal mine worker makes higher daily wages by far than workers in other industries for the same degree of skill, training, and at comparable hazards. The Commission report does not show this or state it, but of almost simultaneous publication is the report of Illinois Miners' Earnings, 1918-1922, prepared and published by the operators of that state, which does show it. Also there is the report in *Monthly and Daily Earnings of Bituminous-Coal Miners*, published by the Brydon Committee. They are able to get some results that the layman can understand. The central Pennsylvania operators managed to come to some pertinent conclusions on the same subject, and from the same data that the Commission had.

It is the unfortunate truth, however, that the public always is likely to discount the operators' figures. The public wants its own Commission's word about whether the miner is simply well paid, overpaid or underpaid. The figures are in the report that Miss Anne Bezanson and her assistants prepared with infinite patience and labor, and the public's representatives warn us, unless we be competent students, to leave it alone, as they have.

And then turn to the recommendation in the “final” report, published last week, and find the place where the Commission says that the industry must be compelled by law to divulge information, through the Interstate Commerce Commission, on earnings of miners.

**Coal Commission Report
On Engineering and Management Shows**

Thickness of Coal, Size of Mine, and Use of Machinery The Three Factors in Efficient Production

**Comprehensive Study of the Production Records for
Twenty Years of All Our Soft-Coal Mines Shows Gratifying
Progress in Better Methods and Efficiency of Operation**

The thickness of your coal you cannot change; the size of your mine is fixed within certain limits; the other big factor in efficient operation, the use of machinery, is in your control. Here is a short, snappy Commission Report on Coal Engineering that is none the less interesting to coal men because written for the public.

Coal is produced the cheapest in those mines that are large, that have coal just a little thicker than the average man is high and that use the most machinery. This is the combined experience of all the soft-coal mines in this country, as brought out in the Engineering and Management Studies of the Coal Commission. The common measure applied to all was the efficiency in tons of coal produced per man per day. Taking into account all workers, the skilled and unskilled, the mine carpenter, electrician, blacksmith, the shoveler and miner, who work inside and outside at all the soft-coal mines, the average daily output per man was 4.19 tons in 1921. It had risen to this figure from 2.56 tons in 1890, steadily mounting to 2.98 tons in 1900 and to 3.46 tons in 1910.

This gain with time has followed the introduction of machinery and the better engineering practice that puts more machinery into industry. Throughout this period the other factors that influenced the efficiency of operation, the size of the mine and the natural conditions of which thickness of coal is the most important, have remained quite constant. In 1895, companies with outputs of 100,000 tons or more per year produced 71 per cent of the total soft coal; in 1905 the figure was 82 per cent; in 1920, 80 per cent. In 1895, 13 per cent of the total operating companies were in the group of those producing 100,000 tons or more; in 1905, 18 per cent; and in 1920, 17 per cent.

Mining Conditions.—The average thickness of coal mined has not changed materially as the thicker beds have been exhausted in the older fields, for thick beds have been opened in the newer fields. Thus the gains that have been made are the result of more efficient use of man power and the greater utilization of machinery. Some of this machinery is labor-saving, much of it is labor-eating. The use of machinery has brought with it new problems of safety; the electric cap lamp, for instance, gives the miner a better light than the safety lamp, but no warning against excessive gas. Electric motors have accelerated underground haulage but add to the accident hazard.

Coal is mined under an exceedingly wide range of natural conditions. Coal beds from less than 2 ft. to more than 50 ft. in thickness are worked in this country today, with the vast majority of the mines having coal between 4 and 10 ft. thick. Some mines are dry as the Sahara, others literally rain water in the work-

ings. Sometimes water must be pumped into the mines to wet the explosive, coal dust, but in most mines the water must be pumped or ditched out. To reach the coal beds some mines have shafts from a few hundred to a thousand feet or more deep, many enter the hillside on the natural outcrop of the coal. No coal bed is level, though many are approximately so. In the hard-coal region the majority now worked are steeply pitching.

The roof over some coal beds is hard and firm, over others it is friable and will not long stand without support. The floor is often clay that "heaves" and interferes with tracks and haulage. Some beds are clean coal from top to bottom, but the greater number contain layers of dirt or "bone" that must be removed, either by hand in the mine or by hand or machinery outside.

In many if not most mines the coal gives out gas, most often explosive, and immense quantities of air must be forced through the workings to dilute this dangerous gas to a harmless mixture.

Coal mining was a primitive form of endeavor. The coal bed was exposed in the hillside. Men dug into it, holding up the roof with props of wood. Fresh air was drawn in by creating a draft through a stove, wooden rails were laid on the floor, small wooden cars pushed by hand or drawn by mules or ponies brought the coal to the open air. The coal was picked down by hand. Mining in just such primitive ways is going on today. In contrast with these inefficient mines are those where advanced engineering, management and machinery are brought to grapple with the problems of gas, water, heaving floor and falling roof, the immense weight of rock overlying the coal bed, the long underground haul, and the cutting down and loading of the coal.

Management.—Man power is still and doubtless always will be the largest item of cost in producing coal. A mine with an output of 4,000 tons per day has nearly 1,000 mine workers. There are more than 600,000 mine workers in the soft-coal fields and 150,000 in the anthracite region. Labor, its management and efficient use is a major problem in coal mining. Labor cost represents nearly 70 per cent of the cost of production, supplies and general expense, including overhead, making up the remaining 30 per cent.

Thus the questions of engineering and management

How Productivity per Man per Day Varies with Size of Mine

Net Tons Produced per Man Employed per Day Worked, at All Commercial Bituminous Coal Mines. From Reports of Operators to U. S. Geological Survey.

Annual Tons per Mine	1905	1914	1920	1921
0—9,999	1.96	2.29	2.36	2.70
10,000—49,999	2.52	2.91	3.24	3.45
50,000—99,999	2.90	3.35	3.80	3.98
100,000—199,999	3.34	3.78	4.10	4.26
200,000 and over	3.80	4.18	4.50	4.73
Total, all mines	3.23	3.71	3.99	4.19

Read these columns from top down and from left across to right—without exception the larger the mine the more tons of coal per man, and each year better than the one before.

in coal mining have from the earliest time revolved around the two problems imposed by natural conditions and efficient use of labor. Coal mining is a huge engineering problem of material handling under adverse conditions. The material in any one mine must be collected from a large number of scattered working places, a few tons in a small pit car, brought by stages to a main haulageway and rushed out to be dumped through a tippie, cleaned, sized and put into waiting railroad cars. In this the engineering work has naturally divided two ways, into the purely mining engineering problems of laying out the underground haulage, the aircourses and the rooms in which the miners dig the coal, timbering, surveying and drainage, all with reference to the way the coal itself breaks down, its thickness, the nature of the roof, and the attitude of the beds. In all of these the first consideration must always be that of safety for the men and for the mine.

In the other direction are the engineering problems that involve largely the proper application of mechanical and electrical engineering to the work that is to be done—undercutting the coal, loading it into cars, motor haulage, types of cars and kind of track, hoisting, dumping and cleaning equipment. It is only by large-scale use of modern machinery that coal is and can be produced as cheaply as it is by the millions of tons each day in this country.

Handling Labor a Management Problem.—Management is not only complicated by the fact of large labor force but by the conditions under which that labor is employed. The coal miner who cuts down the coal, whether by hand or machine, and the loader who puts it into the pit cars is paid by the ton he gets out. In the soft-coal industry 60 per cent of the workers are thus contract workers, in the anthracite mines 40 per cent. These men are piece workers, laboring alone or in pairs in widely scattered rooms underground. As is shown in the separate studies of the Commission on the engineering aspects of underground management and on labor relations, the problem of supervision of such isolated workers is always of first importance.

Handling labor being the first and foremost everyday problem of coal-mine management, it is natural that the operating officials, the supervisory force, has been recruited from the ranks of the workers themselves. From miner to fireboss, up through assistant foreman to foreman, to mine manager or superintendent, has been the natural course for the abler men. Thus we find the intimate control of the mining operation in the hands of those whose chief qualifications is and has been ability to deal with the individual mine worker, and with the elemental forces of nature, the caving roof, the heaving floor, dangerous gas and wrecked mine cars.

In the better managed mines rule-of-thumb practices have been superseded by sound engineering. The larger companies have engineering departments as advanced in their methods as in any other industry, and often with many more problems to solve, but the average practice is far below the best. The anthracite industry because more uniformly profitable does not offer such a wide range between the best and worst; in the soft-coal field with its multitude of little operations it is a far cry from those holes in the ground at which the occasional visit of a surveyor is their nearest approach to an engineer to the modern plant with a corps of en-

Bituminous Coal Producers Classified by Size of Output in 1920

In making up this table each corporation, partnership or individual reporting production to the Geological Survey in 1920 has been classified by size of his total output. The classification is thus by size of company, not size of mine. Each corporation has been treated as a unit and no account has been taken of interlocking ownership or interest between companies. In the succeeding table, the data are expressed in percentage form.

Size Class	Number of Producers In Each Size Class	Number of Mines Operated By These Producers	Total Output Of These Producers
Country banks reporting	1,440	1,440	420,911
Wagon mines shipping by rail, other than local commercial mines	4,405	4,405	4,513,800
Commercial and local commercial mines producing as follows:			
Less than 2,000 tons	795	798	838,483
2,000 to 4,999 tons	806	814	2,604,260
5,000 to 9,999 tons	740	781	5,337,029
10,000 to 49,999 tons	2,121	2,381	53,348,269
50,000 to 99,999 tons	727	974	51,242,458
100,000 to 199,999 tons	543	988	75,508,562
200,000 to 299,999 tons	202	424	49,019,958
300,000 to 399,999 tons	94	215	32,965,932
400,000 to 499,999 tons	52	152	23,390,433
500,000 to 599,999 tons	33	98	17,914,499
600,000 to 699,999 tons	28	70	18,007,916
700,000 to 799,999 tons	20	122	14,969,468
800,000 to 899,999 tons	12	89	10,112,361
900,000 to 999,999 tons	16	140	14,149,119
1,000,000 to 1,249,999 tons	17	128	18,691,389
1,250,000 to 1,499,999 tons	9	119	12,471,314
1,500,000 to 1,749,999 tons	11	82	17,935,541
1,750,000 to 1,999,999 tons	10	97	18,747,933
2,000,000 to 2,499,999 tons	10	101	20,329,863
2,500,000 to 2,999,999 tons	7	110	21,697,649
3,000,000 to 4,999,999 tons	12	125	43,943,573
5,000,000 and over tons	4	213	40,505,963
Grand Total	12,124	14,766	568,666,683

The following table expresses the data in the preceding table in the form of percentages of the total both absolute and cumulative.

Size Class	Per Cent of Total Producers	Per Cent of Total Mines	Cumulative Per Cent of Total Output	Per Cent of Total Output
Country banks reporting	11.88	9.75	0.07	11.88
Wagon mines shipping by rail, other than local commercial mines	36.34	29.83	0.79	48.22
Commercial and local commercial mines producing as follows:				
Less than 2,000 tons	6.56	5.40	0.15	54.78
2,000 to 4,999 tons	6.65	5.51	0.46	61.43
5,000 to 9,999 tons	6.17	5.29	0.94	67.60
10,000 to 49,999 tons	17.50	16.12	9.38	85.10
50,000 to 99,999 tons	6.00	6.60	9.01	91.10
100,000 to 199,999 tons	4.48	6.01	13.28	95.58
200,000 to 299,999 tons	1.67	2.87	8.62	97.25
300,000 to 399,999 tons	0.78	1.46	5.80	98.03
400,000 to 499,999 tons	0.43	1.03	4.11	98.46
500,000 to 599,999 tons	0.27	0.66	3.15	98.73
600,000 to 699,999 tons	0.23	0.48	3.17	98.96
700,000 to 799,999 tons	0.16	0.83	2.63	99.12
800,000 to 899,999 tons	0.10	0.60	1.78	99.22
900,000 to 999,999 tons	0.13	0.95	2.49	99.35
1,000,000 to 1,249,999 tons	0.14	0.87	3.29	99.49
1,250,000 to 1,499,999 tons	0.07	0.81	2.19	99.56
1,500,000 to 1,749,999 tons	0.09	0.56	3.15	99.65
1,750,000 to 1,999,999 tons	0.08	0.66	3.30	99.73
2,000,000 to 2,499,999 tons	0.08	0.68	3.58	99.81
2,500,000 to 2,999,999 tons	0.06	0.74	3.82	99.87
3,000,000 to 4,999,999 tons	0.10	0.85	7.72	99.97
5,000,000 and over tons	0.03	1.44	7.12	100.00
Grand Total	100.00	100.00	100.00	100.00

Everyone has a general idea about the number of small soft-coal mines in this country, but these tables tell the story in a simple effective way. That 85 per cent of the producers supply but 12 per cent of the output indicates the room for larger mines and for consolidations.

gineers developing and applying up-to-date methods and machinery.

The backwardness of the soft-coal industry in utilizing to a greater and more universal extent the best that modern management and engineering has to offer is plainly to be attributed to the speculative character of many of the mining enterprises. Those operators who have developed steady going businesses have no desire but to operate continuously; they are substantial going concerns. But a host of speculative operators come and go with the rise and fall of the spot price of coal. Since they operate only when a definite if not substantial profit is in sight, these operators give scant attention to good engineering and management practices. In times of high prices they can produce at a profit by slipshod methods, in poor times they shut down or at best are not financially able to invest in modern equipment. This explains why so much of the soft coal is produced inefficiently.

On the other hand the anthracite industry, which by comparison with the bituminous-coal business has been so uniformly profitable and which has had such a steady market for its product, has not had the economic incentive to reach out for always better and cheaper methods. Electrification of the anthracite industry, for instance, is backward compared with the most general advanced practice in soft-coal mining. The conservatism that pervades the anthracite industry has fastened on its engineering and management methods, as well.

Progress, Past and Future.—What better engineering and management mean to the coal industry and the coal consumer through lower cost may be illustrated by pointing out that if there had been no increase in efficiency since 1905 it would have taken the labor of 760,000 men working the average of 220 days to have produced the same tonnage of soft coal as was produced in 1920 with 630,000 men. In 1905 it took 0.31 man-day to produce a ton of coal, in 1921, but 0.24 man-day. Figured on the basis of the present basic day wage of \$7.50 per day this has meant a saving through better mining of 53c. per ton of bituminous coal, or about \$250,000,000 per year on normal soft-coal production. The further saving in housing by reason of the fewer men is an item of importance.

It is the conclusion of the engineering investigation conducted for the Commission under the direction of C. E. Lesher and R. A. Walter and summarized in this report that in the next decade there will be a reduction of 25 per cent in the man power required to produce a ton of bituminous coal through the continued development of better methods of mining, the more extended use of machinery, particularly for replacing hand load-

Tons Produced by All Bituminous Operators, Including Country Banks and Wagon Mines, Classified by Size of Producer, 1905 and 1920

This table is not to be confused with others of this series, which include only coal from commercial (and local commercial) mines.

Size Class	Tons Produced By These Operators		Per Cent of Total Output	
	1905	1920	1905	1920
Operators producing annually				
Less than 10,000 tons.....	5,359,000	13,715,000	1.7	2.4
10,000 to 49,999 tons.....	24,567,000	53,348,000	7.8	9.4
50,000 to 99,999 tons.....	27,988,000	51,243,000	8.9	9.0
100,000 to 499,999 tons.....	105,319,000	180,885,000	33.4	31.8
500,000 to 999,999 tons.....	34,021,000	75,153,000	10.8	13.2
1,000,000 to 4,999,999 tons.....	93,985,000	153,817,000	29.8	27.1
5,000,000 tons and over.....	23,824,000	40,506,000	7.6	7.1
Total.....	315,063,000	568,667,000	100.0	100.0

Trend of Size of Producing Corporation, 1905 and 1920

Data include commercial and local commercial producers only. Grouping is by size of company, not size of mine. Each operating corporation is treated as one producer, regardless of possible affiliations with other corporations.

Size Class	Per Cent of Total Operators		Per Cent of Total Mines Run By These Operators		Per Cent of Total Tons Produced By These Operators	
	1905	1920	1905	1920	1905	1920
Operators producing annually						
Less than 10,000 tons.....	42.8	37.4	29.9	26.8	1.6	1.6
10,000 to 49,999 tons.....	27.6	33.8	21.4	26.7	7.8	9.4
50,000 to 99,999 tons.....	11.6	11.6	11.1	10.9	8.9	9.1
100,000 to 499,999 tons.....	15.2	14.2	20.3	18.8	33.4	32.1
500,000 to 999,999 tons.....	1.4	1.7	4.5	5.8	10.8	13.2
1,000,000 to 4,999,999 tons.....	1.3	1.2	10.4	8.6	29.9	27.3
5,000,000 tons and over.....	1	1	2.4	2.4	7.6	7.2
Total.....	100.0	100.0	100.0	100.0	100.0	100.0
Cumulative Per Cent						
Operators producing annually						
Less than 10,000 tons.....	42.8	37.4	29.9	26.8	1.6	1.6
10,000 to 49,999 tons.....	70.4	71.2	51.3	53.5	9.4	11.0
50,000 to 99,999 tons.....	82.0	82.8	62.4	64.4	18.3	20.1
100,000 to 499,999 tons.....	97.2	97.0	82.7	83.2	51.7	52.2
500,000 to 999,999 tons.....	98.6	98.7	87.2	89.0	62.5	65.5
1,000,000 to 4,999,999 tons.....	99.9	99.9	97.6	97.6	92.4	92.8
5,000,000 tons and over.....	100.0	100.0	100.0	100.0	100.0	100.0

ing, and by better management. The coal consumer, of course, will reap the larger share of any saving that is thus made, as it has that already accomplished.

The anthracite industry shows a different record. The working of thinner, deeper beds has been largely responsible for a reduction from 2.18 tons per man per day in 1905 to 2.09 tons in 1921. The gains from better engineering have been more than offset by the increasing handicap of natural conditions. The direction in which the anthracite industry can effect the largest economies lies in better utilization of the fine sizes; those below pea coal are marketed in competition with soft coal at prices below their actual cost of production. These economies will be attained by the use of the finest sizes as powdered fuel for steam raising and by some form of briquets or otherwise converting the fine coal to solid smokeless fuel of large size suitable for ordinary household use.

Improved methods of mining have conserved enormous tonnages of coal for future use by reducing waste in mining, and there is even yet opportunity for further saving.

From 25 per cent of the original anthracite in the ground recovered in the mining of 1850, the per cent of recovery has risen to more than 60 today and there is no reason why it should not attain 70 per cent. In the production of bituminous coal whereas 36 per cent of the original deposit was recovered by mining in 1850, 65 per cent is the average now produced, and bringing the poorest practice up to the average will bring the figure to 85 per cent.

The Mechanical Loader Coming Fast.—In management, the application of engineering to operation and handling men, the coal industry has not made the progress it has in the application of engineering to machinery and equipment. The day of the mechanical loader is just dawning. Nearly half the men in the coal mines are employed to shovel the coal by hand from the room floor to pit car. The use of the machine for this work will mean fewer men employed but it will mean higher wages and cheaper coal as well. The investment will add to the overhead cost in interest, depreciation and maintenance, but the increase will be offset many times over by reduction in total labor and other costs of production.

Studies by the industrial and mining engineers of the

Commission, presented in detail in an appendix to this report show the possibilities of economies that can be, and are in some mines, realized by advanced management practice in the very important field of underground haulage. The standardization of equipment, of jobs and the better utilization of the time of the workers are fields of coal-mine management largely untouched as yet, largely because the supervisory force that operates the average coal mine today, is already overburdened with the work of handling the human element under the

adverse condition imposed by scattered working places.

The statement of these conditions carries its own obvious recommendations and suggestions to the coal industry. If anything further is required it is the suggestion that coal operators co-operate with the mining schools and colleges even further than they have in their efforts to train young men in the elements of coal-mine engineering and labor management and that these technically trained men be encouraged and given opportunity to learn the operating side of coal mining.

How Average Daily Output per Mine Worker Varies with Thickness of Coal, Size of Mine and Use of Undercutting Machines, 1921

MINES PRODUCING LESS THAN 10,000 TONS Proportion Mined By Machines

Thickness of Bed Being Mined, in Inches	Less than 4			4 to 6			6 and Over			Unspecified			Total		
	Number of Mines	Production in Tons	Production per Man per Day	Number of Mines	Production in Tons	Production per Man per Day	Number of Mines	Production in Tons	Production per Man per Day	Number of Mines	Production in Tons	Production per Man per Day	Number of Mines	Production in Tons	Production per Man per Day
24 or less.....	48	164,000	1.36	4	19,000	1.23	8	31,000	1.53	1	.....	.....	61	214,000	1,146 1.37
25 to 36.....	378	1,215,000	2.28	9	57,000	3.05	80	339,000	1.94	7	14,000	1.52	474	1,625,000	9,481 2.21
37 to 48.....	514	1,748,000	2.84	23	127,000	2.68	208	829,000	2.97	17	43,000	2.70	762	2,747,000	17,307 2.87
49 to 60.....	313	1,053,000	2.93	12	66,000	4.68	150	604,000	3.61	9	30,000	2.38	484	1,753,000	11,398 3.17
61 to 72.....	187	678,000	3.24	10	44,000	2.89	100	416,000	3.67	5	14,000	1.63	302	1,152,000	7,284 3.33
73 to 84.....	72	253,000	3.91	4	8,000	5.00	26	113,000	3.51	3	13,000	2.77	105	387,000	2,807 3.75
85 to 96.....	52	222,000	3.71	.....	.....	.....	10	39,000	4.06	2	.....	.....	62	261,000	1,219 3.76
97 and over.....	49	181,000	3.23	.....	.....	.....	5	18,000	3.46	2	2,000	1.82	56	201,000	1,079 3.23
Unspecified.....	218	629,000	2.51	7	33,000	2.68	43	173,000	2.49	805	1,422,000	2.33	1,073	2,257,000	8,569 2.40
Total.....	1,831	6,143,000	2.71	69	354,000	2.84	630	2,562,000	2.94	849	1,538,000	2.33	3,379	10,597,000	60,290 2.70

MINES PRODUCING 10,000 TONS, AND LESS THAN 50,000

24 or less.....	23	465,000	2.27	3	65,000	1.88	20	476,000	1.84	.....	.....	.....	46	1,006,000	2,955 2.02
25 to 36.....	229	5,076,000	2.84	20	526,000	2.18	107	2,590,000	2.67	2	48,000	1.73	358	8,240,000	22,178 2.72
37 to 48.....	287	6,491,000	3.15	50	1,293,000	3.42	338	8,678,000	3.52	2	32,000	2.03	677	16,494,000	41,329 3.35
49 to 60.....	237	5,556,000	3.60	53	1,240,000	4.01	264	6,780,000	4.15	5	72,000	3.48	559	13,648,000	34,527 3.90
61 to 72.....	144	3,061,000	3.67	30	736,000	3.53	162	4,512,000	4.31	1	12,000	2.00	337	8,321,000	21,224 3.97
73 to 84.....	62	1,509,000	4.20	16	434,000	4.72	49	1,172,000	4.32	.....	.....	.....	127	3,115,000	7,090 4.31
85 to 96.....	36	846,000	3.56	6	214,000	3.92	21	524,000	4.39	.....	.....	.....	63	1,584,000	4,398 3.85
97 and over.....	36	943,000	3.77	5	75,000	6.25	15	353,000	4.34	.....	.....	.....	56	1,371,000	2,669 3.99
Unspecified.....	38	704,000	3.34	2	56,000	5.96	32	754,000	3.09	41	758,000	3.13	113	2,272,000	5,155 3.22
Total.....	1,092	24,651,000	3.29	185	4,639,000	3.46	1,008	25,839,000	3.64	51	922,000	2.95	2,336	56,051,000	141,455 3.45

MINES PRODUCING 50,000 TONS, AND LESS THAN 100,000 TONS

24 or less.....	3	176,000	1.61	1	57,000	1.48	3	236,000	2.40	.....	.....	.....	7	469,000	1,197 1.91
25 to 36.....	37	2,610,000	3.45	7	516,000	2.80	33	2,184,000	3.05	.....	.....	.....	77	5,310,000	9,825 3.20
37 to 48.....	83	5,846,000	3.14	24	1,706,000	3.23	205	14,264,000	3.92	.....	.....	.....	312	21,816,000	36,521 3.62
49 to 60.....	72	5,135,000	3.84	23	1,697,000	4.05	156	11,235,000	4.35	.....	.....	.....	251	18,067,000	30,701 4.16
61 to 72.....	39	2,779,000	3.64	21	1,442,000	3.83	100	7,335,000	4.52	.....	.....	.....	160	11,556,000	20,210 4.19
73 to 84.....	32	2,386,000	5.72	9	598,000	5.51	38	2,762,000	5.40	1	62,000	19.38	80	5,808,000	8,036 5.58
85 to 96.....	41	2,897,000	4.88	17	1,150,000	3.94	18	1,277,000	6.09	.....	.....	.....	76	5,324,000	11,054 5.86
97 and over.....	12	899,000	5.94	2	160,000	3.27	9	621,000	5.04	.....	.....	.....	23	1,680,000	2,021 5.19
Unspecified.....	5	363,000	3.63	.....	.....	.....	11	782,000	3.92	.....	.....	.....	16	1,145,000	1,983 3.92
Total.....	324	23,091,000	3.79	104	7,326,000	3.67	573	40,696,000	4.19	1	62,000	19.38	1,002	71,175,000	121,548 4.00

MINES PRODUCING 100,000 AND LESS THAN 200,000 TONS

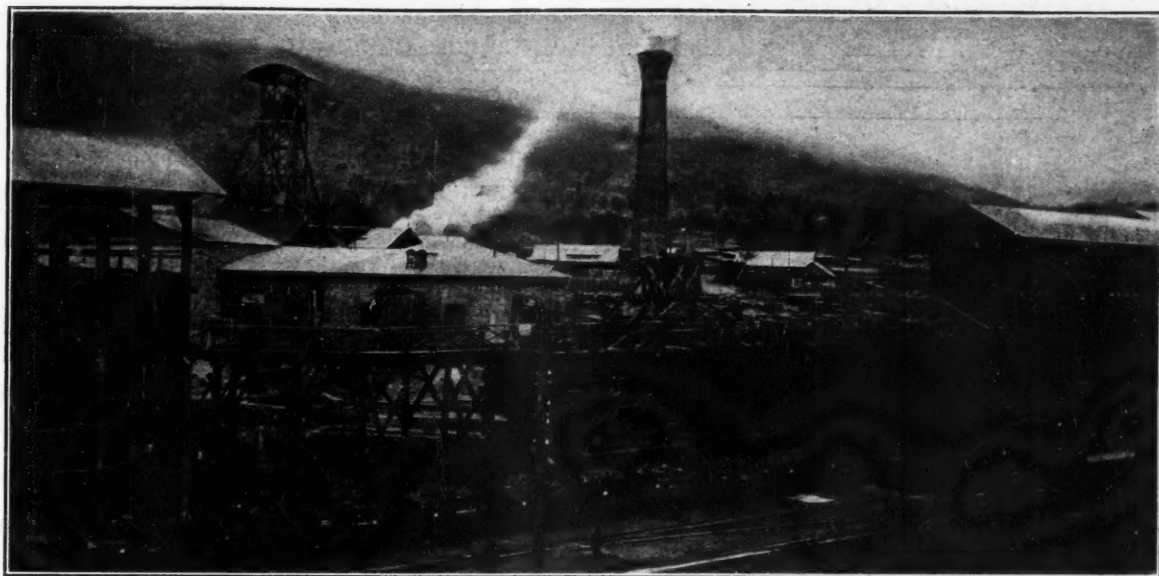
24 or less.....	8	1,038,000	2.55	4	555,000	2.68	16	1,080,000	2.63	.....	.....	.....	1	108,000	166 2.63
25 to 36.....	32	4,074,000	2.96	18	2,559,000	3.60	97	2,114,000	2.83	.....	.....	.....	28	3,707,000	6,607 2.72
37 to 48.....	46	6,509,000	3.89	15	2,098,000	4.13	162	13,632,000	3.88	.....	.....	.....	147	20,265,000	28,551 3.62
49 to 60.....	41	5,566,000	3.95	20	2,898,000	4.68	123	22,605,000	4.55	.....	.....	.....	223	31,212,000	42,209 4.37
61 to 72.....	25	3,266,000	4.91	18	2,648,000	4.40	57	17,906,000	4.61	.....	.....	.....	184	26,370,000	38,678 4.46
73 to 84.....	17	2,483,000	4.46	4	579,000	4.32	63	8,379,000	5.16	.....	.....	.....	100	14,293,000	18,989 4.94
85 to 96.....	14	1,844,000	4.59	2	287,000	6.04	19	11,087,000	6.25	.....	.....	.....	84	14,149,000	17,972 5.76
97 and over.....	2	226,000	4.60	.....	.....	.....	2	2,916,000	6.08	.....	.....	.....	35	5,047,000	5,894 5.42
Unspecified.....	.....	.....	.....	.....	.....	.....	2	252,000	4.60	.....	.....	.....	4	478,000	589 4.60
Total.....	185	25,006,000	3.82	81	11,624,000	4.11	540	78,999,000	4.62	.....	.....	.....	806	115,629,000	159,655 4.37

MINES PRODUCING 200,000 TONS AND OVER

24 or less.....	.....	.....	.....	2	758,000	3.65	4	938,000	2.53	.....	.....	.....	6	1,696,000	2,618 2.93
25 to 36.....	11	3,306,000	3.85	10	2,957,000	3.67	24	7,432,000	4.05	.....	.....	.....	45	13,695,000	16,612 3.91
37 to 48.....	17	5,314,000	4.13	7	2,226,000	4.43	66	21,073,000	4.27	.....	.....	.....	90	28,613,000	33,443 4.25
49 to 60.....	21	6,301,000	4.39	15	5,038,000	4.18	107	37,041,000	4.58	.....	.....	.....	143	48,380,000	53,948 4.51
61 to 72.....	10	2,776,000	5.42	12	4,345,000	4.46	83	28,648,000	5.34	.....	.....	.....	105	35,769,000	37,788 5.22
73 to 84.....	8	2,010,000	4.66	11	3,821,000	4.55	33	14,502,000	5.61	.....	.....	.....	52	20,333,000	21,370 5.28
85 to 96.....	12	3,973,000	5.16	3	1,403,000	5.60	23	8,142,000	5.50	.....	.....	.....	38	13,518,000	14,176 5.41
97 and over.....	.....	.....	.....	.....	.....	.....	1	467,000	3.54	.....	.....	.....	1	467,000	550 3.54
Unspecified.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	79	23,680,000	4.47	60	20,548,000	4.29	341	118,243,000	4.77	.....	.....	.....	480	162,471,000	180,505 4.66

TOTAL OF ALL MINES

24 or less.....	74	805,000	1.85	8	141,000	1.59	32	851,000	2.03	1	.....	.....	115	1,797,000	5,464 1.91
25 to 36.....	652	9,939,000	2.85	42	2,412,000	2.81	240	8,165,000	2.74	9	62,000	1.68	943	20,578,000	50,709 2.80
37 to 48.....	927	21,465,000	3.17	125	8,642,000	3.50	872	44,835,000	3.82	19	75,000	2.37	1,943	75,017,000	140,320 3.57
49 to 60.....	685	23,567,000	3.80	110	7,327,000	4.18	798	62,297,000	4.36	14	102,000	3.06	1,607	93,293,000	152,208 4.19
61 to 72.....	432	18,385,000	3.95	96	10,158,000	4.19	592	67,210,000	4.55	6	26,000	1.78	1,126	95,779,000	141,344 4.38
73 to 84.....	201	10,190,000	5.05	59	8,033,000	4.52	253	41,074,000	5.27	4	75,000	9.49	517	59,372,000	74,710 5.12
85 to 96.....	154	8,458,000	4.50	38	5,764,000	4.36	145	27,429,000	5.85	.....	.....	.....	337	41,651,000	56,013 5.28
97 and over.....	123	7,840,000	4.81	12	1,925,000	5.36	71	12,050,000	5.55	2	2,000	1.82	208	21,817,000	25,839 5.24
Unspecified.....	263	1,922,000	3.15	9	89,000	4.10	89	2,428,000	3.47	846	2,180,000	2.56	1,207	6,619,000	16,846 3.03
Total.....	3,511	102,571,000	3.71	499	44,491,000	4.02	3,092	266,339,000	4.47	901	2,522,000	2.58	8,003	415,923,000	663,453 4.19



Coal of Soochan and Its Importance in Pacific Trade

Output Rose with Russia's Progress and Fell with Its Decline—Six Coal Seams Three to Nine Feet Thick—Anthracite and High-Grade Bituminous Coal—Coke and Briquets Manufactured—Railroad Location Ill-Chosen

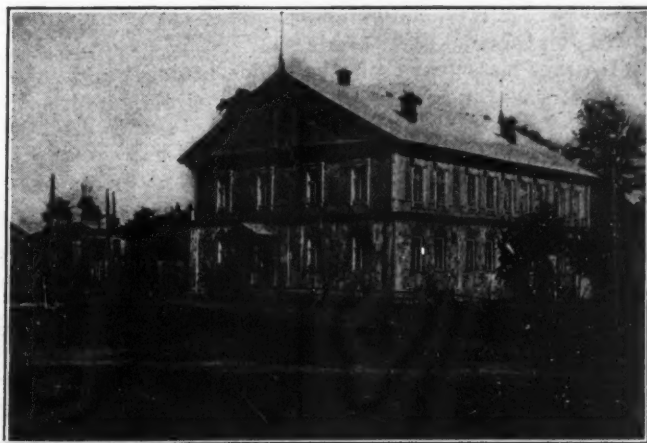
BY I. TOLMACHOFF*
Pittsburgh, Pa.

OF ONLY recent date is the development of the coal industry in Far East Russia. It found its first justification in the construction of the great Siberian R.R., which was and still is one of the most important consumers of coal, for the consumption of that fuel is still small in the Russian Far East. The industries which require so much coal in other countries thus far are lacking in these regions, and the domestic use of coal is spreading slowly. By and by, however, coal will drive out firewood, heretofore the traditional Russian fuel throughout the country.

It has been estimated that the possible annual demand for coal in the Russian Far East does not exceed 900,000 tons, but the local coal production has never reached so large a figure. Such an amount could well be produced from a single mine. It seems ill-fitting that it should be the output of a spacious country like the Russian Far East with its extensive and rich coal fields. The figures show that the consumption of coal and the development of the industry are only just starting in that region.

Soochan has a prominent position among the different localities in which coal is mined in the Russian Far East. The Soochan coal fields are situated in the Maritime Province of Eastern Siberia, 93 miles east of Vladivostok. The mineral was discovered in 1888 and successfully examined and prospected in the years

that followed. The good quality of the coal, as proved by laboratory tests and trials on steamers, and the possibility of its adoption for use by the Russian Navy decided the fate of the mines, and beginning 1900 they were operated by the government, the expenses being paid out of the state treasury. The government institutions—the Army and Navy departments, the railroads, etc.—acquired the greater part of the output of the mines. It is possible to say that for the greater part of the time the Soochan mines were working almost entirely for government supply. The importance of the government's orders for coal is shown distinctly



OFFICE BUILDING AT SOOCHAN MINES

The church can be faintly descried on the left. A substantial building with the ground floor of stone. The upper story is of wood.

*Former managing director of Far Eastern Geological Committee and professor of geology in Polytechnic Institute, Vladivostok, Siberia; now curator of invertebrate paleontology, Carnegie Museum. The author desires to credit V. Paak, former manager and mining engineer, for information and illustrations furnished.



ROAD FROM MINES OVER SIKHOTA XALIN MOUNTAINS

These mountains separate the mines from the coastline. About 200 square miles are covered with forest which will supply the mines with timber for many years. Note the typical Russian conveyance. Though Soochan is a Chinese name the mines are on Russian territory.

in Table I, in which the quantity consumed is tabulated by kinds of consumers for the years between 1908 and 1919.

TABLE I—CONSUMPTION DISTRIBUTION BY USES, SOOCHAN MINES

Year	Government Consumption—			Total	Other Consumers	Percentage of Consumption	
	Navy	Army	Railroads			Government	Other
1908....	25,133	39,483	64,033	137,982	9,333	94	6
1909....	70,250	43,550	30,900	151,338	6,683	96	4
1910....	94,417	43,833	21,883	164,416	4,283	97	3
1911....	69,518	30,350	70,650	173,816	3,318	98	2
1912....	49,983	28,900	71,517	157,583	7,183	95	5
1913....	25,183	38,250	52,533	129,299	11,333	91	9
1914....	56,667	40,050	48,667	149,317	3,933	97	3
1915....	45,083	35,883	66,667	166,933	19,300	89	11
1916....	44,417	41,550	78,317	207,334	43,050	80	20
1917....	54,050	31,933	69,750	217,516	61,783	75	25
1918....	11,917	11,517	75,567	155,534	56,533	67	33
1919....	9,800	8,400	22,467	59,100	18,433	67	33

These conditions were very profitable for the enterprise, as the government alone could build a special railroad 73 miles long between the mines and the main road and install adequate mechanical equipment. For this reason the Soochan mines were the best mining operations in the Russian Far East, experienced workmen and employees being brought from the Donetz coal fields of European Russia.

On the other hand, the government's enterprises in Russia were always defective from a commercial point of view, and the Soochan mines are no exception to that rule. It is possible now to say frankly that the mines could have been operated as they were only by the continued support of the government, which was given partly in an indirect way, namely by fixing a high price for the coal purchased.

In the last years of their operation, years when Russia was the victim of many political troubles, the

Soochan mines lost the support of the government. They delivered much less coal to government institutions and were forced to exist much as any other commercial enterprise; that is, they were compelled to pay all the expenses of operation out of their own income. The enterprise is in an extremely difficult position now and only with great difficulty can meet the unavoidable costs of everyday operation.

The Soochan coal fields extend over 850 square miles, ninety of which are more or less prospected and found coal-bearing; only 13 square miles, one-sixty-fifth of the whole region, forming the area of exploitation. This area has been examined in detail.

The coal-bearing measures occupy a strip of land one to two miles wide. They consist of Jurassic strata, severely folded in many places. Six coal seams are suited for operation. They have a steep dip which runs from 65 to 80 deg. and are of uneven thickness, varying between 3 and 9 ft.

According to recent geological investigations the whole coal reserve in the Soochan coal fields above a depth of 1,400 ft. can be estimated at about 40,000,000 tons, a quarter of which is in the well-prospected area of exploitation. However, there are good geological reasons to infer that coal-bearing strata exist outside of the prospected region, and the possibility of finding new coal bodies is promising.

Systematic mining started in 1903 with the completion of shaft sinking. The output increased gradually every year, reaching a maximum in 1917. From that year the output declined, the cause being political unrest in Russia and the decreased demand of the government institutions. The following table gives the production of the mines and the cost per ton loaded on railroad cars at the tipple:

TABLE II—OUTPUT OF SOOCHAN COLLIERIES BY YEARS AND COST PER TON

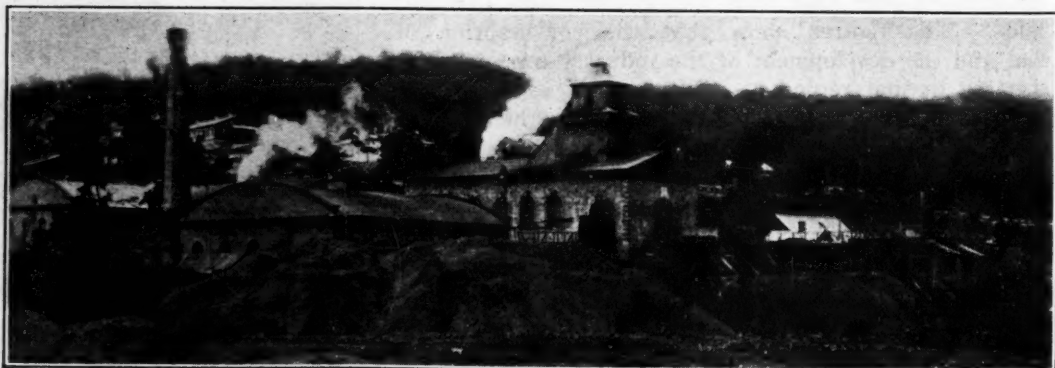
Year	Output Tons	Cost of Production—	
		Rubles	Dollars
1903.....	19,567	.....	.....
1904.....	27,383	.....	.....
1905.....	50,567	.....	.....
1906.....	20,063	.....	.....
1907.....	8,967	.....	.....
1908.....	115,733	3.75	\$1.87
1909.....	177,917	3.94	1.97
1910.....	200,150	3.92	1.96
1911.....	218,900	4.06	2.03
1912.....	212,083	4.30	2.15
1913.....	166,733	4.64	2.32
1914.....	209,533	4.65	2.32
1915.....	208,450	4.81	2.40
1916.....	275,033	5.75*	.....
1917.....	299,283	9.10*	.....
1918.....	209,550	36.88*	.....
1919.....	120,317	98.95*	.....
1920.....	121,233	15.00	7.50
1921.....	140,000†	12.00	6.00

* As the ruble in these years was the paper ruble, no precise equivalent in dollars can be attempted. † Estimated output based on output of certain months.

The proximate analysis of the Soochan coals greatly varies with locality and depth. They contain 5 to 28

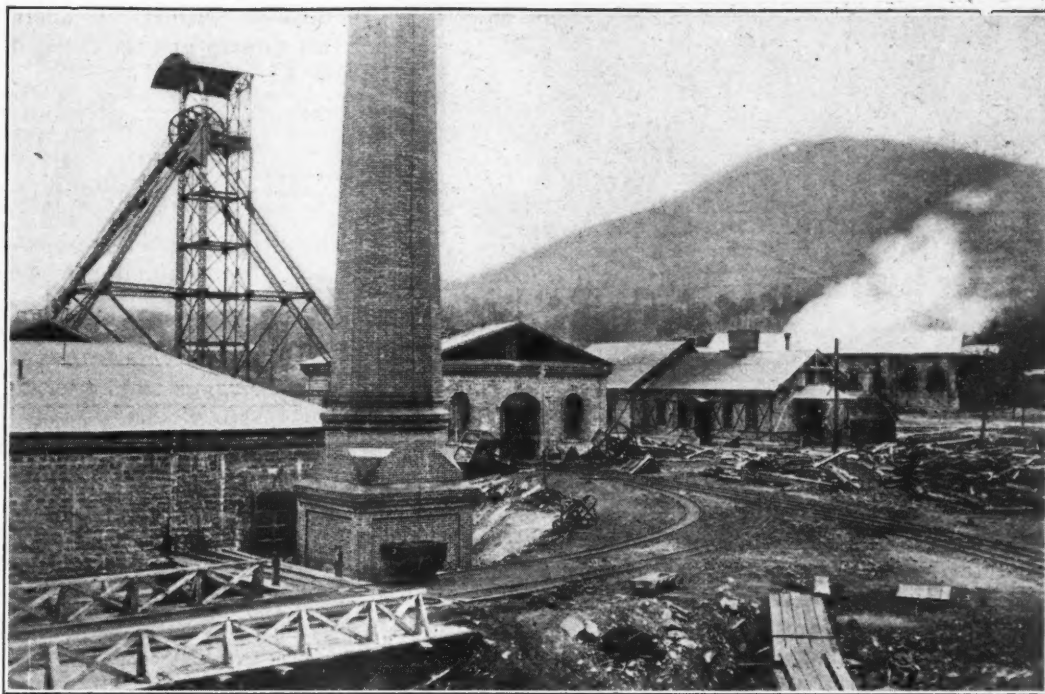
Surface Works, No. 1 Mine

Note the curved roofs sustained by segmental steel trusses. The hills in the rear are well wooded. Glimpes of the village can be seen back of the mine buildings.



Plant at Mine No. 2

The headframe of this mine consists of an open vertical tower of steel with a backstay and with tension members on the opposing side of the tower. The buildings at this plant have gabled roofs. From an American point of view the lighting is somewhat inadequate, the windows being few and not large.



per cent of volatile matter, 8 to 24 per cent of ash and not over 0.7 per cent of sulphur. The high percentage of ash forced the administration of the mines to erect picking tables and washeries.

From a marketing point of view Soochan coal can be divided into two classes: (1) Coking coal, containing 15 to 28 per cent of volatile matter and 8 to 12 per cent of ash. This coal compares well with the best coals used on the Pacific Ocean. It is well fitted for export. (2) Coal for which it is difficult to find consumers abroad but which can be used in the country domestically, for railroads and other purposes. This includes bituminous coal with 15 to 28 per cent of volatile matter but with more ash than coals of the first category, namely 15 to 24 per cent, and anthracite coals with 8 to 12 per cent of volatile matter and much ash.

In Table III two analyses of the better class of Soochan coal are given, which can be compared with coals Nos. 3, 4, 5 and 6, which are Japanese, and Australian coals used on the Pacific Ocean.

TABLE III—COMPARISON OF TWO SOOCHAN COALS WITH
COMPETING FOREIGN FUELS

	1	2	3	4	5	6
Moisture.....	0.83	1.12	2.28	2.57	2.36	2.00
Volatile matter.....	22.83	22.83	40.54	44.45	41.44	42.45
Fixed carbon.....	63.36	64.51	52.75	57.01	51.52	52.55
Ash.....	13.13	12.16	5.75	6.17	7.04	5.00
Sulphur.....	0.68	0.50	0.96	0.37	0.90	0.75
British thermal units.....	13,572	13,410	13,464	13,392	13,685	14,150
Calories.....	7,540	7,450	7,480	7,440	7,603	7,861
Heating efficiency.....	8.0	7.8	7.65	7.5		
Equivalent.....	1.0	1.025	1.045	1.066		

1 and 2—Coking coal of Soochan coal fields. 3—Japanese coal of Ochi coal field. 4—Japanese coal of Beebay coal field. 5—Australian coal from Hebburn colliery delivered to Schonfeld barracks, Hawaii. 6—Coal from same source delivered to Fort Ruger, Hawaii.

The calorific values of all three kinds of coal are somewhat similar. It will be noted that the lowest figure is 13,392 B.t.u. for a Japanese coal to 14,150 for one derived from Australia. The last two coals, which are quite similar to each other in their proximate analyses, differ greatly from the coal of the Soochan mines in the larger percentage of volatile matter and the smaller proportion of carbon and ash.

The only defect in the Soochan coal is the big percentage of ash, and this fault can be partly removed by washing. This is now being done. The other differences are in its favor as a steaming coal, which is demon-

strated in Table IV by comparing the quantities of Soochan coal and of other coals used on the Pacific Ocean that will produce a given result. The various coals are compared with the best Cardiff, its heating power being taken as unity.

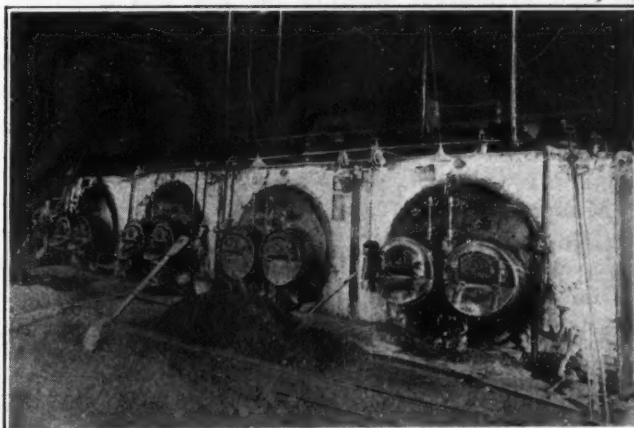
Australian coal has a better reputation than that from Japan, but it is more expensive. In spite of this it is often preferred to the Japanese coal, if the consumer is looking for quality.

TABLE IV—WEIGHTS OF COAL GIVING EQUAL NUMBER OF HEAT
UNITS

Source	Equivalent
Best Cardiff, Wales*.....	1.000
Duisky, Sakhalin.....	1.125
Tokasima†, Japan.....	1.173
Soochan, coking.....	1.257
Nakusima, Japan.....	1.371
Kitegawa, Japan.....	1.400
Ichic, Japan.....	1.500
Turukawa, Japan.....	1.500
Ioubary, Japan.....	1.514
Otaru, Japan.....	1.650
Akanki, Japan.....	1.635
Meeke, Japan.....	1.430
Kanaimo, Japan.....	1.370
Australian.....	1.580

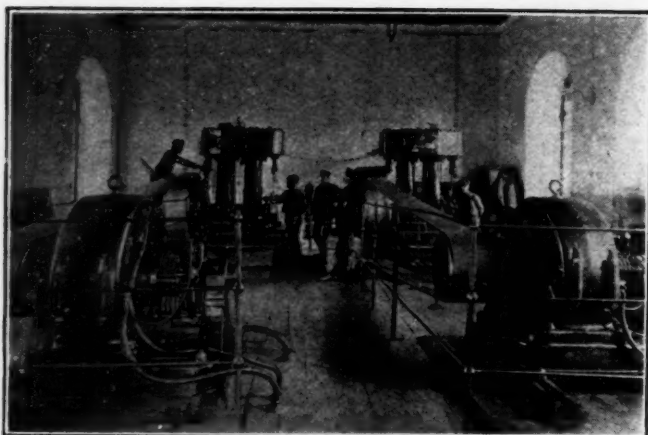
*With every reloading coal loses 10 per cent in coarseness. †Not on market since 1896. Run-of-mine coal, not cleaned.

Soochan bituminous coal is well suited to the production of coke. The coal is coked in beehive ovens,



INTERNAL-COMBUSTION BOILERS, MINE NO. 2

Evidently the fine coal is used to raise steam. A close inspection will reveal how the roof is sustained and how the coal is brought into the boiler room.



POWER HOUSE AT MINE NO. 2

Vertical engines drive the generators by belting. Note the massive walls and the white surfaces, which make the most of what light is admitted.

the total output not exceeding 500 tons a month, no byproducts being obtained or utilized.

Coke production started in the year 1908; it gradually increased in accordance with the demand of the market and reached its highest point in the year 1917, during the war, when Soochan coke was used largely in the military works and shops on the Siberian R.R. and was delivered as far as Omsk, over three thousand miles from the point of coking.

The output of coke is about 55 per cent of the weight of coal used. The average analysis of Soochan coke, prepared from washed coal, is: Fixed carbon, 82.49 per cent; volatile matter, 3; ash, 12.50; sulphur, 0.50; phosphorus, 0.01; moisture, 1.50; calories, 8,000; British thermal units, 14,400.

The data of the coke industry in tons and the costs of production in rubles and dollars are given in Table V.

TABLE V—PRODUCTION COST OF COKE BY YEARS

Year	Production, Tons	Cost of Production— Rubles	Dollars
1908.....	817	13.44	6.72
1909.....	817	13.39	6.69
1910.....	1,183	13.07	6.53
1911.....	1,250	12.75	6.87
1912.....	1,183	13.28	6.64
1913.....	1,467	16.05	8.02
1914.....	1,300	15.60	7.80
1915.....	2,817	14.43	7.21
1916.....	4,480	13.94	6.97
1917.....	5,412	19.29*	.....
1918.....	2,880	82.23*	.....
1919.....	1,660	201.64*	.....
1920.....	400	54.00*	.....

* No precise comparison with American currency is possible.

In order to supply the Russian Navy with a compact fuel and to prevent wasting the fine coal and dust collected in the coal yard of the Navy Department in Vladivostok, a factory was built in that city for the manufacture of briquets. It is capable of producing

10 tons of prismatic briquets per hour. The output of this factory and the costs of production are shown in Table VI.

TABLE VI—OUTPUT AND PRODUCTION COSTS OF BRIQUET FACTORY

Years.....	1913	1914	1915	1916	1917	1918	1919	1920
Production (tons).....	33,083	12,283	4,133	.....	10,750	6,233	3,767	7,567
Costs { rubles.....	16.23	17.40	21.60	.....	21.30	75.50	480.00	29.40
dollars.....	8.10	8.70	10.80	.....	10.65	.....	.....	14.70

The Soochan plants are well supplied with timber for mining and building purposes. About a quarter of the acreage—200 square miles—is covered with forest, thus making certain that there will be no lack of timber for the operation of the mines for many years.

Labor, strange to say, is not so scarce in Soochan as in the rest of Russia, though in a country having as scanty a population as the Russian Far East it well might be expected that labor would be more difficult to obtain than elsewhere. The Russian workmen who were brought to Soochan from European Russia at the commencement of mining, and their descendants are



HEADFRAME AND WASHERY AT NO. 2 MINE

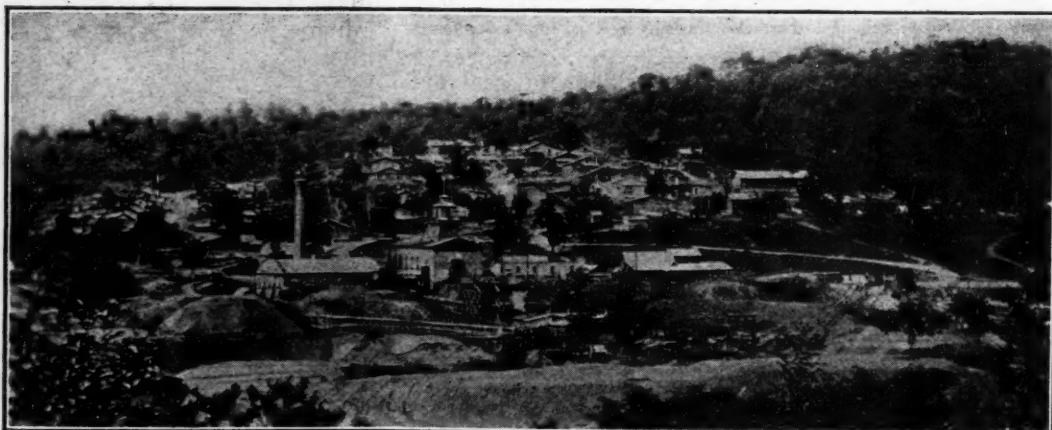
The coal in the Soochan mining region contains from 8 to 24 per cent of ash. Consequently the need for a washery is evident. The washing is performed in the building on the right.

still living at the mines, being intimately connected with the enterprise. They undoubtedly were infected by the revolutionary propaganda of recent years and strikes were not infrequent, but after all there were good economic reasons for unrest and the troubles were not all due to political excitation.

The men were paid irregularly for their labor and not at the full rate; food and other necessities were of poor quality and in uncertain supply. In spite of these conditions—quite enough to cause laboring men to revolt in any country—it was the workmen's opposition which saved the mines, when their destruction was devised by Bolshevik agitators, who came to Soochan with their propaganda and urged the workmen to destroy there, as elsewhere, the instruments of capitalism. The Far East has, besides Russian workmen, a practically unlimited supply of yellow labor from

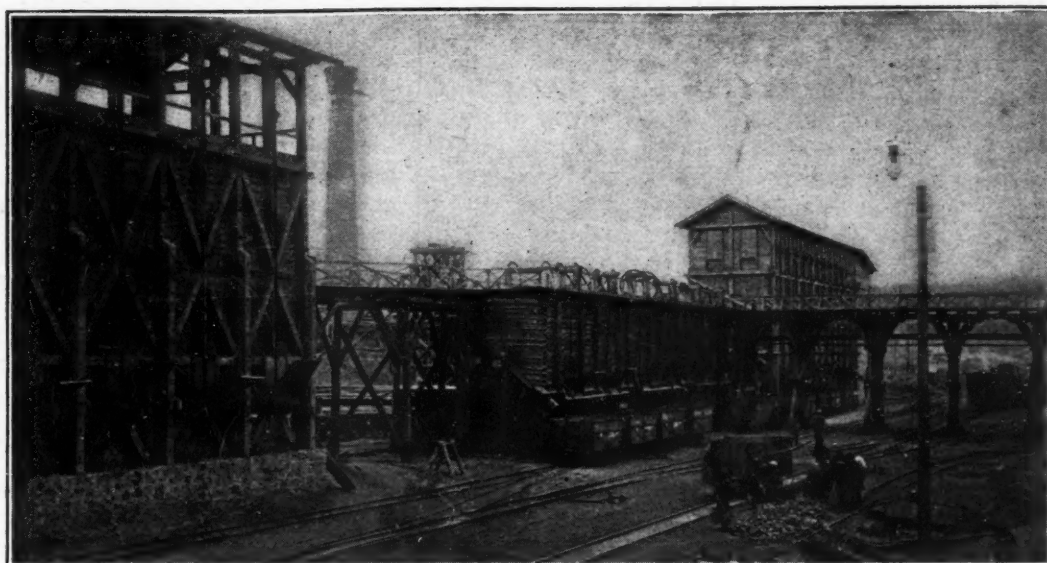
Mining Town, No. 1 Mine

The plant in the foreground readily will be recognized as the same as is shown in a previous illustration. Despite the large area of land available the village is placed close to the mine.



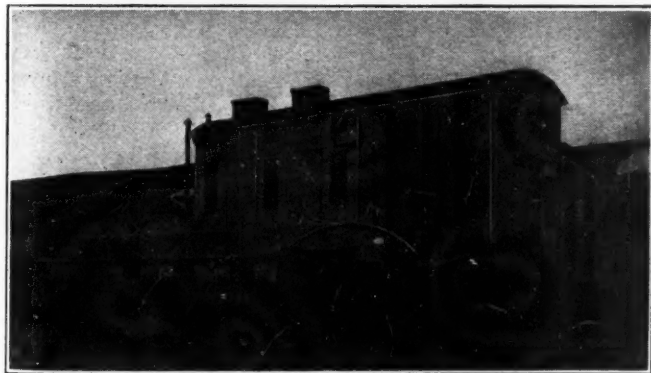
Bunkers of Aerial Tramroad

These are at No. 2 Mine. The tramroad brings coal from Mine No. 1. Observe the interesting bents to the right which economize space and timber. Probably there is little cause to be frugal in the use of the latter in Russia, but a saving of space everywhere has its advantages, especially around a yard. Rotary dumps can be seen above the loading pockets in the middle of the illustration.



China and Korea. Today 70 per cent of the workmen in the mines of Soochan are Russians and the other 30 per cent Chinese.

Though the production which the mines achieve is small, it is obtained only by the operation of several shafts and slopes, none of which, however, is more than 700 ft. deep. Every mine is supplied with its own boiler plant, its own power house and a separate staff of officials and workmen which are specially assigned to its service. Despite its low tonnage, each mine is practically a separate operation. Such extreme decentralization can be explained in part by the history of the development of the mines and in part by the defective industrial organization, but it readily can be seen



BRIQUET FACTORY AT VLADIVOSTOK

The coal yard of the Navy in Vladivostok contained large quantities of slack. In order to make of it a fuel better suited to the needs of the Navy a factory making prismatic briquets was erected. It has a capacity of 10 tons per hour.

to be a source of unjustifiable overhead expense. For example, owing to the many small plants it is necessary to operate twenty-five small boilers and these use 10 per cent of the coal mined.

But the way in which coal is delivered from the mines to the market is subject to even more serious criticism. Of the trackage of the Soochan R.R. 48 miles are of the usual Russian type with a wide gage, but 25 miles are of narrow gage (750 mm., or a little less than 30 in.). Where the narrow track crosses the crest of the Sikhoto-Alin Mountain a system of rope haulage with four hoists and three skid shoes is applied. The operation of this part of the road is complicated and expensive. There are ten stations and crossings in a distance of 18 miles and a large staff of

workmen has to be employed. The expense is increased by the frequency with which the machinery gets out of repair and by accidents along the road, especially that part of it which is served by rope haulage. The cost of transport on the wide-gage track, on account of some technical defects, is high also. These defects together make transportation on the Soochan R.R. so expensive that the price of coal is about doubled by the time it reaches the market.

Table VII gives the cost of transportation on the narrow track in recent years:

Years.....	1912	1913	1914	1915	1916	1917	1918	1919	1920
Cost of transport, per ton {									
Rubles.	2.23	2.24	1.97	2.21	2.19	3.62	14.50	29.57	6.00
Dollars.	1.11	1.12	0.98	1.10	1.09	3.00

The cost of transport on the wide-gage road before the war was 1.5 rubles, or 75c., per ton and at present time is 2.84 rubles, or \$1.42, which figured per mile is 0.03 ruble, or 1.5c., per ton and 0.06 ruble, or 3c., per ton, respectively. The cost of freight on the Oossoory (Ussuri) R.R., which is the part of the great Siberian R.R. between Vladivostok and the Soochan R.R. junction, a distance of 20 miles, was before the war 0.15 ruble, or 7.5c., and is now 0.25 ruble, or 12.5c., per ton, which figured per mile is 0.0075 ruble, or 0.37c., and 0.0123 ruble, or 0.6c., per ton respectively. This comparison shows that the cost of transportation on the Soochan wide-gage railroad was before the war four and is now five times more expensive than on the ordinary Russian railroad.

The total cost of coal transport between the mines and Vladivostok, before the war was therefore 3.88 rubles, or \$1.94, and is now 9.09 rubles, or \$4.54. With ordinary railroad connections these figures should be 0.70 ruble, or 35c., and 1.14 rubles, or 57c. The difference between the normal freight rate (the latter one) and that existing on the Soochan R.R. is due solely to the poor accommodations on the latter railroad. It has been estimated that during the existence of the Soochan enterprise the Russian government has paid for its delivered coal about 20,000,000 rubles, or \$10,000,000, more than would have been necessary had the track of the railroad been properly located. These figures are especially surprising when it is remembered that the total value of the entire coal field can be expressed at 12,000,000 rubles, or \$6,000,000.

The Soochan R.R. is not only expensive to operate



HOSPITAL BUILDING AT SOOCHAN MINES

A wood structure but quite extensive and set on an eminence.

in its present condition, but it is of small capacity as it cannot, even without any interruption of traffic, carry more than 300,000 tons yearly, but even that tonnage probably never will be reached. Increased development of the mines therefore would serve no useful purpose if the Soochan R.R. is not so rebuilt as to be a continuous railroad having a gage equal to that commonly used in Russia. The technical possibility of this enterprise is proved by prospecting work performed in the years 1920-1921 by the Administration of Mines.

It may be of interest to mention that at the time when the Soochan enterprise was being started, decision was made to construct a railroad about 27 miles long in a southerly direction to Nakhodka Bay. The cost of this short railroad, which would have had a capacity of 200,000 tons a year, would have been 3,000,000 rubles, or \$1,500,000. This estimate included the construction of a harbor with all equipment for coaling ships mechanically. The railroad thus projected was never constructed, for military reasons.

The lines at present are in bad condition. The political events of Russia were reflected in the Far East and at the Soochan mines. All the equipment has worn out rapidly, not having been repaired promptly when repairs were needed. Much expenditure will be required to restore the capacity of the mines. It is estimated that the work started some years ago but not finished could be completed in two years at an expenditure of 1,800,000 rubles, or \$900,000. With it the output should rise to 400,000 tons annually, a part of which will be used in the running of the mines themselves and a part will have to be coked because the railroad can haul only 300,000 tons.

In spite of all difficulties, and they are many, Soochan mines even now can deliver to the foreign markets a few thousand tons every month. It is regrettable that Soochan coal is not known outside of Russia, as it is difficult for mines to look for the new consumers on the foreign market under present conditions and it is risky to send coal abroad without a definite order. However, once established in the market Soochan coal will hold its own, for with an assured market will come improved methods of operation and a low production cost that will enable the management to lower the selling price. Labor is cheap in the Far East in comparison with what it is in America and Australia. The markets now receiving Australian coal are no further from Vladivostok than from Australia, and some, like Alaska, are actually nearer. Furthermore, with an improved railroad the figure for freight can be brought below the \$4.95 paid before the war. A railroad more judiciously constructed should haul a million tons annually, and the field could supply it for at least forty years out of the prospected area alone.

South Dakota Operates Its Own Coal Mine in North Dakota*

Finds Mine Prices of Private Concerns Reasonable but That Owing to Multiplicity of Retailers Delivered Prices Are Too High

GOVERNOR McMASTER of South Dakota having staged an attack on the distributors of gasoline, by offering the public state-owned fuel from its own warehouses at 16c. per gallon, or more than 10c. under the prevailing price for gasoline at filling stations, is now getting ready to show the mining world and writers on political economy in particular the part that a government can take in the production and sale of coal during emergency conditions, when capital, labor and dealers cease to function harmoniously and without proper consideration for the reduced purchasing power of the farmer's dollar. This state is actually one of the largest owners of coal lands, surveys indicating more than a billion tons of lignite in the two northwestern counties.

Having left it to others to spend millions on experimental work trying to improve the quality and radically change the physical conditions of lignite coal, these hard-headed farmers decided in 1919 that an inferior quality of coal delivered at a low price to them was better than no coal at all. If public funds had to be spent, the most practical way would be to open a mine, operate it at the lowest possible cost and sell directly to the public. It seemed inconsistent that the very state institutions that were owners of these coal lands by direct grant from the federal government were paying excessive prices for Eastern coal hauled an average distance of 1,000 miles. The result was a state mine, located for convenient railway connections just outside the state at Haynes, Adams County, North Dakota, and today the largest producer of lignite in the Northwest. The theory then adopted was that if this grade of coal be delivered to the consumer he will find some way to burn it by appropriate changes in the type of stoves and grates or by improvements in the draft conditions.

VENTURE ON SOUND BUSINESS BASIS

Growth of the undertaking has been slow and hindered by setbacks that on several occasions brought operations to a standstill, but the scheme as a business venture was fundamentally sound and in the absence of political interference and with the energetic and efficient management of E. O. Roush the mine is today in a position where it can and will play an important part in the welfare of its owners, the citizens of South Dakota.

In spite of the immense area of the state and the long haul to the centers of population there are few points where the state mine cannot deliver fuel in car-load lots at a price beyond competition when figured on the basis of calorific value per dollar expended by the consumer.

Started primarily to supply only state institutions, the demand has grown to a point where orders from individuals, public-utility plants, municipal schools and public buildings, central heating stations and laundries exceeds the daily capacity of the mine equipment. The

*Article entitled "South Dakota Prepares for the Coal Shortage," received on the stationery of the South Dakota Coal Mining Commission, Pierre, S. D.

mine receives no public funds for improvements or extensions, these being met by surplus earnings, the original grant by the Legislature being amortized with interest by a charge of 15c. per ton of coal mined. Owing to its location outside the state of South Dakota it is duly and heavily assessed for local, county and state taxes. As a publicly operated enterprise it is therefore unique. Political opponents and misinformed taxpayers have motored up to see for themselves a waste of public funds and remained to place orders for their winter fuel.

Located on the Yellowstone Trail, which follows for a mile the southern boundary of the property, the mine has become one of the show places of the route for tourists coming and going.

The coal, as mined, is a firm black lignite with a brilliant luster and distinct cubical cleavage. Its moisture content is 32 per cent and its heat content 7,500 B.t.u. It holds together well during shipment and also in storage if not exposed in thin piles to sunlight or currents of warm air. Working conditions underground are excellent, the mine is dry, the ventilation good, the roof firm and the 16-ft. horizontal strata of coal free from layers of non-combustible matter. The seam is found 30 ft. from the surface.

A spur track 2½ miles long operated by the mine con-

nects with the main line of the Chicago, Milwaukee & St. Paul Ry. Shipments are made to every county in South Dakota having railroad facilities and to adjacent points in North Dakota and as far east in Minnesota as Minneapolis.

The mine has a service department under the direction of Dr. Bancroft Gore, of the State School of Mines at Rapid City, where the utilization of lignite is studied intensively and the merits of base-burner heating stoves, magazine-type steam and hot-water heating furnaces are investigated and reported to the public, different types of automatic stokers and hand-operated grates for boiler operation also being tested. Dr. Gore has investigated the burning of state lignite in pulverized form without previous drying, results having been published in June of last year in the *Black Hills Engineer*.

One purpose of the state mine is to build up a steady demand for lignite by those heretofore accustomed to anthracite and in this way not only save residents large sums but stimulate the development of the lignite area by private capital. This mine can never fill all the requirements of the state but it is in a strategic economic position to prevent absolutely at any time unfair prices either by the mine owner or dealer by its advertised price schedule for run-of-mine, screened or slack coal delivered promptly at all points of the state.

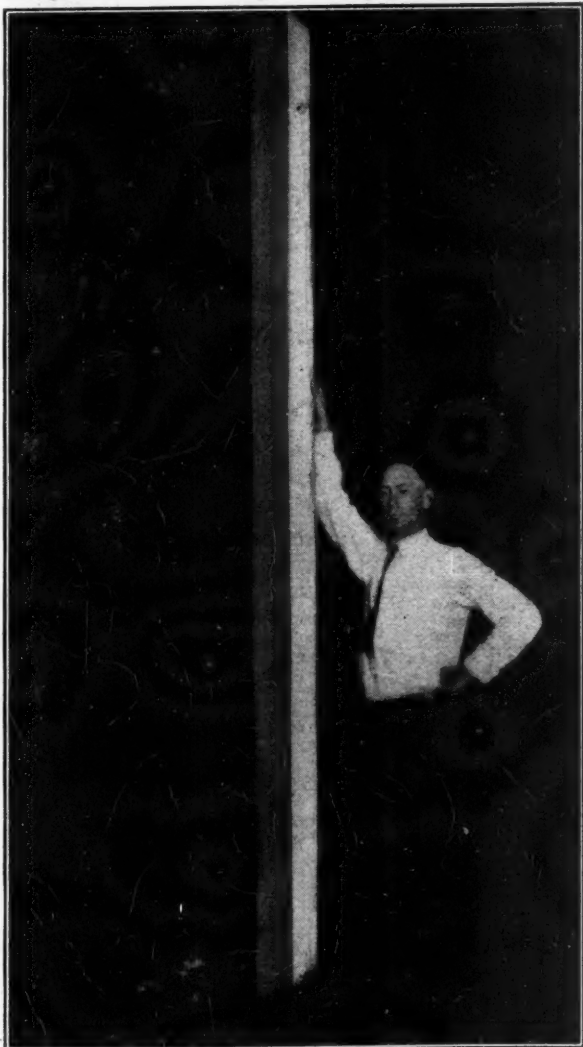
In general it has been found that the wholesale prices of privately owned mines, after discounting the high freight rate from the long haul are reasonable, but the high cost and the excessive profits of local dealers have to be reckoned with, and the state mine with no initial intention of interfering in any way with the small dealer now advises the small consumer to form clubs of four or five members and buy directly in carload lots from the mine and have a local drayman weigh each truckload from the car, charging each subscriber his proportionate cost for coal at mine plus freight and truckage.

Again and again it was found that all advantages of low-cost fuel were discounted and entirely lost by the excessive cost of doing business by the small dealer. Usually there were too many of him in each community.

Big Three of the Cabinet

What Washington occasionally calls the important big three of the Cabinet are Hughes, Hoover and Mellon. Hughes and Mellon are in this group apart because of the importance of their particular offices, as well as because of their ability. Hoover is in it in spite of the relatively less importance of his Commerce Department, because of his extraordinary personal ability and because, as a matter of fact, he is so well grounded and so indispensable in many big matters that come up outside the limits of his particular official field.

As to Secretary Hoover, in addition to his own department, he is everything that is embraced in the dignity and efficiency of the phrase, "a competent workman." He contributes able and faithful trustworthiness for such frequently arising emergencies as coal strikes, unemployment, conservation and a dozen other matters calling for hard work, concentration of mind and immensely varied knowledge. It was one of the comparatively few easing comforts that Mr. Harding had in his difficult Presidency to know that at any hour, day or night, Mr. Hoover was at the end of the telephone wire, subject to call for any emergency. It was a reliance of which Mr. Harding made frequent use. Mark Sullivan, in *N. Y. Tribune*, Aug. 6, 1923.



SCENE IN THE LIGNITE MINES AT HAYNES, S. D.

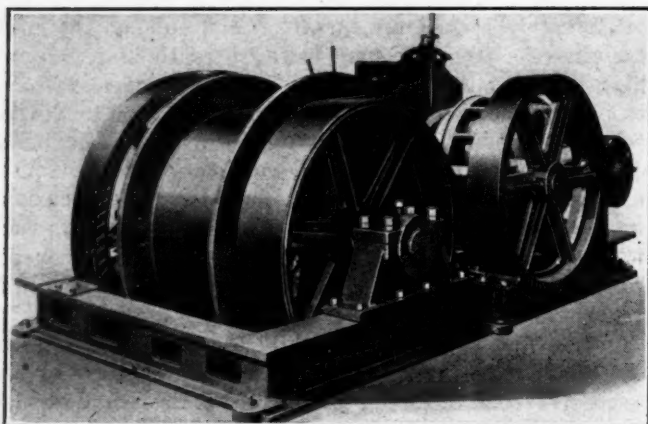
Coal when mined is firm, black and cubical, but it has 32 per cent of moisture and only half the heat of the best grades of coal. However, many believe that lignite found almost on the doorstep is preferable to coal hauled thousands of miles, even though it may contain only half the heating power of the more remote fuel.

New Equipment

Electric Hoist for Heavy Work

A NEW electric mine hoist development recently made by the Thomas Elevator Co., of Chicago, embodies oversize drums, low pedestals, semi-automatic control, through-bolt bearing construction, and extra large brakes. It is designed especially for pulling cars up inclines, sinking shafts, or any similar class of work which requires unusual strength and a large cable capacity. This particular hoist is similar in many respects to the standard Thomas single friction drum mine hoist but is designed for much heavier duty.

The new hoist is fitted with Thomas band frictions, which eliminate thrust bearings and their heating and welding tendencies. These band frictions are located in the opposite end of the drum from the brake. Both the friction and the brake are composition lined and of sufficient area for heavy service on long hauls. Machine cut gears are used exclusively throughout. Drum shafts are turned from forgings, pedestal bearings are of through-bolt design, and semi-automatic variable speed control is included as standard equipment.



NEW BAND FRICTION ELECTRIC MINE HOIST
A heavily constructed hoist for slope and shaft duty.

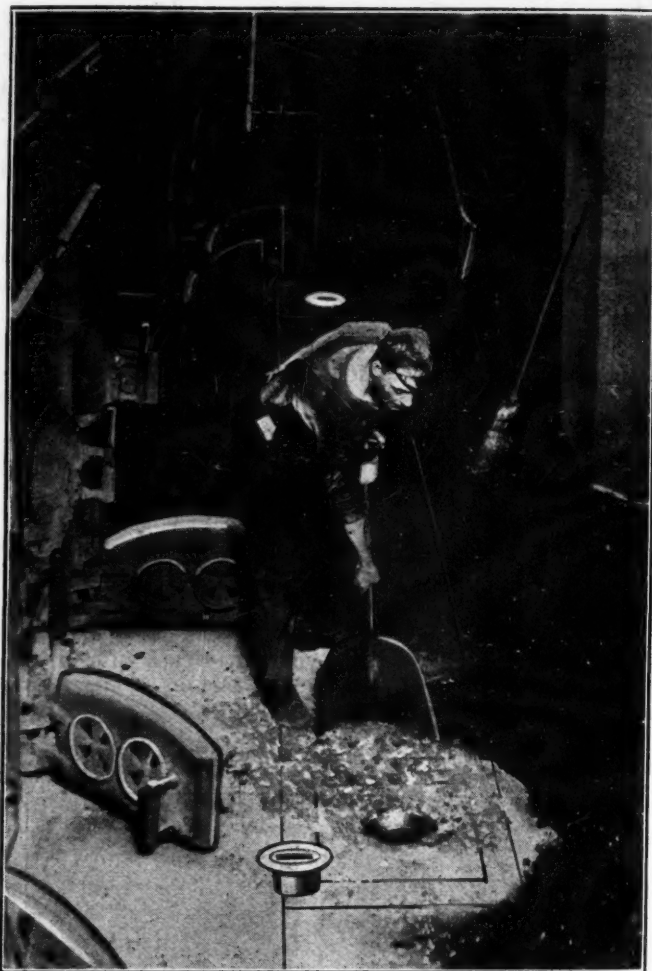
All motors are regularly furnished with a Thomas automatic irreversible safety brake. Control levers are banked in quadrant.

Steam-Jet Ash Conveyor

RECENT developments in the labor situation have brought home more forcefully the advantages of labor-saving equipment around the power house. Unskilled labor is becoming more pressing in its demands and more choice in the type of work it performs. Handling ashes is dirty, dusty, back-breaking work. Men stay at it only until they can get something less disagreeable. As a result the power plant crew is constantly shifting and changing.

The installation of labor-saving ash-handling equipment not only relieves the plant of the turmoil of changing labor but makes possible the transfer of men working in the boiler plant to other work.

In an effort to cut the power-plant payroll, the American Steam-Jet Ash Conveyor was manufactured by the Conveyors Corporation of America, 326 West Madison

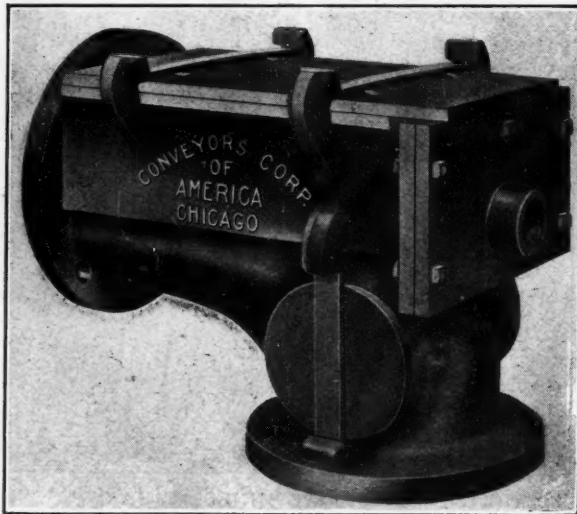


USING ASH CONVEYOR

Here the fireman is shown feeding the ashes into the conveyor system as he cleans the fire.

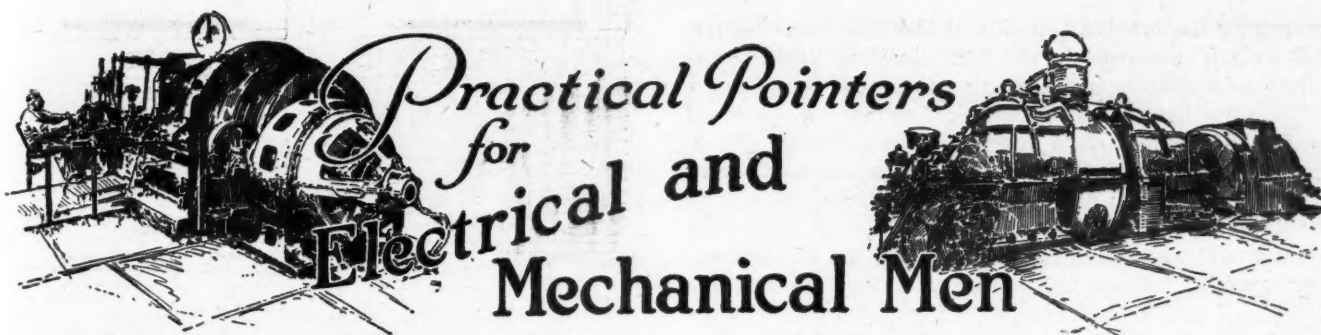
St., Chicago, for handling ash in power plants. At one mine this conveyor was installed several years ago with a saving of two men and a team. The daily savings amounted to \$12.38.

One of the advantages of the steam-jet conveyor is the effect on the morale of the other plant employees. The wheel-barrow gang no longer hampers the boiler-room workmen as they stoke their fires. The floors are kept clean; there is no dust-laden atmosphere.



STEAM UNIT OF ASH CONVEYOR

A jet of high pressure steam is introduced through this fitting into the conveyor line.



Reasons for Interchanging the Fields of Locomotive Motors While Braking

REFERRING to some interesting discussions which have recently appeared in *Coal Age* on the subject of electric braking for mine locomotives, I believe the following ideas will show some of the points brought out in investigations which have been made along this line.

The equalizer is the first thing which suggests itself to anyone studying electric braking for locomotives, because of its simplicity. However, there are several serious objections to its use. The series direct-current motor has inherent characteristics which tend toward keeping the load on two or more motors running in parallel and driving the same load balanced, even though the speed of the two motors is not exactly the same. This is particularly essential in the case of locomotives and street cars as the diameters of the driving wheels change due to wear and one wheel may be considerably greater in diameter than another on the same locomotive or car.

A locomotive could very readily be selected and the fields of the two motors connected by means of an equalizer and a small amount of resistance so that the current in their armatures balance. If conditions on the locomotive remain exactly the same it might run indefinitely without any serious unbalancing, but the wheels of the locomotive wear and in a short time one set of wheels might easily become greater in diameter than the other, with the result that the motor connected to the wheels with the greater diameter would run a little slower than the other set of wheels, and since the fields of the two motors are balanced by the equalizers between them, the motor running slower would generate a lower counter electro-motive force and take more current than the faster motor, the amount of unbalancing depending upon the difference between the diameters of the two pairs of wheels. This unbalancing will occur whether the machines are running as motors or generators.

One of the reasons for selecting a series motor for traction work is its ability to take its share of the load when two or more motors are operated in parallel and connected mechanically to the same load. Shunt motors, which maintain a practically constant speed over a wide range of load, will not divide their loads equally when operated under these conditions and a very slight change in the speed of one motor will change to a large extent the amount of current it draws from the line. Using an equalizer between the fields of series motors gives them characteristics similar to the shunt motor.

Reference has been made to the use of equalizers to maintain a balance between generators in power plants. Generators operating under these conditions are pro-

vided with strong shunt fields. The series fields are only a small proportion of the total field. The balance between the machines is first obtained by adjusting the shunt-field rheostats. The function of the equalizer between the series fields is to keep the current equalized between the generators under varying loads after they have been balanced by adjusting the shunt fields.

Numerous tests have been made of electric braking using several different connections. Interchanging of the fields has been found to be the most reliable connection for insuring an equal division of the load.

R. D. KRAPE,

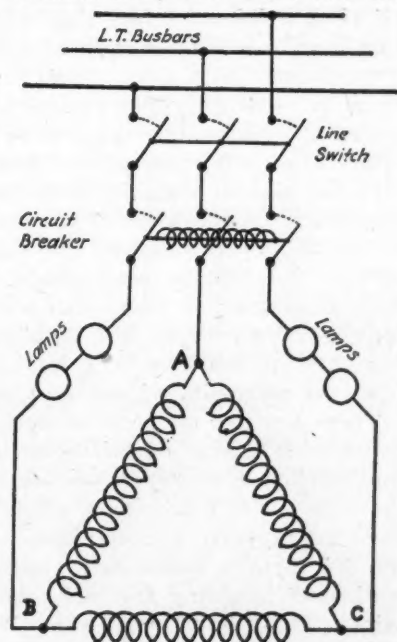
Railway Equipment Engineering Department,
General Electric Co.

Paralleling a New Transformer

A NEW transformer often has to run in parallel with existing units, and in order to make the right connections considerable care is necessary. A short-circuit may accidentally result from getting some of the windings of the transformers to be paralleled on the line in series instead of in opposition.

There are two simple methods by which the connections can be checked, always assuming, of course, that the transformers to be paralleled are similarly connected internally. The first is to note the direction of rotation of an induction motor fed from the low-pressure bus bars of one transformer; then substitute the new transformer for the first one, and the motor should run in the same direction, the transformers may then be connected together.

The second method and the one which is perhaps preferable is to connect up the high-tension side of the new transformer ready for running from the high-tension busbars. On the secondary side one line wire should be permanently connected to the low-tension circuit breaker which will be employed for



PARALLELING A TRANSFORMER WITH ANOTHER

The test lamps give an indication which tells when the secondary terminals are properly connected to the lines.

controlling the low-tension side of the new transformer. This switch should be in the "off" position until everything is in readiness. Having connected, say, line A to one terminal of the low-tension switch as shown in the figure, the two remaining line wires should be connected temporarily to the other two transformer terminals through a number of 200- or 220-volt lamps in series. On a 500-volt circuit two 250-volt lamps in series would be suitable, as indicated on the illustration. Any number of lamps will suffice so long as the full-line voltage of the transformers is high enough to make them glow. It is unnecessary that the lamps fully light, as a decided glow will be sufficient for conducting the test.

When everything is in readiness, as indicated in the figure, the high-tension line and oil switches of the new transformer are closed; these are not shown in the figure. Then the low-tension line switch is closed and afterward the circuit breaker, which should be set to open on a very low current. This connects the secondary of the new transformer through the lamps to the busbars which are assumed to be fed from an existing transformer with which it is desired to parallel the new transformer. If the lamps light up, the lines B and C are crossed and should be interchanged. If the transformers are of normal design the lamps will then be dark, in which case the new transformer may be isolated and the connections between the lines and transformer made in the usual method direct from the circuit breaker to the transformer. In the event of the connection appearing to be right the first time, it is advisable to change the leads temporarily in order to get the lamps to light as a check on the condition of the test lamps and lamp-holders. A possible broken connection in each series of lamps—an unlikely but possible coincidence—might lead to a serious result if not checked in this manner.

R. FOKES.

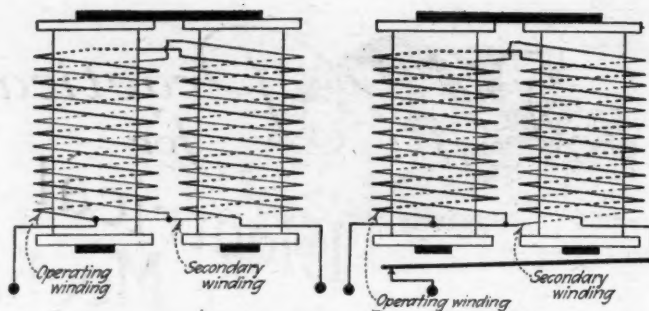
Making Signaling Bells Safe Against Ignition of Gas

IT IS a well-known fact that when the circuit of an ordinary electric bell is interrupted the self-induction of the magnet coils gives rise at the contacts to a spark which is sufficiently hot to ignite a gaseous mixture, and from time to time this source of ignition has been suspected of being the cause of mine explosions.

In the case of trembler bells the ignition of gas is more likely to take place at the make-and-break contact of the bell itself than on the signal wires or at the switch. With single-stroke bells, however, the break flash may occur on the signal wires or at the switch only. A single-stroke bell usually needs a larger current, and of the two it is less safe in its operation from the viewpoint of gas ignition.

There are two methods available for overcoming the undesirable effects of self-induction in the bell coils. One employs a copper sleeve which surrounds each of the coils but to obtain most efficient results the sleeves must be properly proportioned, and this involves the use of certain mathematic calculations. The other method of attaining the same end, but with more certainty, is by employing what is known as a short-circuited winding.

The object of these notes is to indicate briefly how the break-flash of existing electric bells may be rendered harmless by rewinding and at the same time



FIGS. 1 AND 2—SINGLE-STROKE AND TREMBLER BELLS WITH SECONDARY AUXILIARY WINDING

Both types of bells may be wound with auxiliary windings, which have a dampening effect upon the arc, occurring wherever the circuit is broken during operation.

applying a short-circuited winding, which needs no calculations and therefore requires little or no technical skill in its application. To rewind an electric bell to apply this secondary winding requires more space on the magnets themselves. Many bells have magnets which are not fully wound and the additional space can be utilized without increasing the diameter of the bobbin ends in order to take the extra amount of wire.

In many instances old bells will be found to have windings of comparatively low resistance. In winding such bells a wire of smaller section may often be employed. This provides the necessary space for the additional winding, and by filling the bobbins entirely the resistance of the working winding can be made higher than the original one. If the bobbins on a bell to be converted are already full of wire and the construction does not lend itself to increasing the depth of winding by enlarging the diameter of the bobbin ends, then new bobbins must be made. These can easily be cast or they may be turned from the solid.

The wires for winding should be double-silk covered, so that the insulation between the operating and the short-circuited winding will be reliable. In winding, reels of wire are employed. These should be suitably mounted so as to turn freely as the winding proceeds. The bobbin to be wound also should be mounted free to turn and provided with a temporary handle. Winding proceeds in the usual way, except that the wire is fed double, so that for every turn of working winding there is one short-circuited turn.

When the bobbins are filled an insulation test should be made on each coil between the two windings. If the test is satisfactory, one winding on each bobbin—it does not matter which—will be short-circuited—that is, its two ends joined together and soldered, afterward being joined to one terminal of the working winding. This prevents any strain being placed inadvertently on the insulation between the windings and in no way affects the functioning of the short-circuited element. The illustration shows how the windings are arranged and connected on a single-stroke and a trembler bell. The advantages of this method of neutralizing the break-flash of signal bells are:

(1) The short-circuited winding always bears a fixed relation to the working winding and is independent of the number of turns, seeing that a short-circuited turn is introduced with every working turn of wire.

(2) The application is simple and can be carried out by an unskilled person, no calculations being required.

(3) Bells with these short-circuited windings can be worked with almost absolute safety.

ENGINEER.



Problems of Operating Men

Edited by
James T. Beard



Normal vs. Reverse Faults in the Mining of Coal

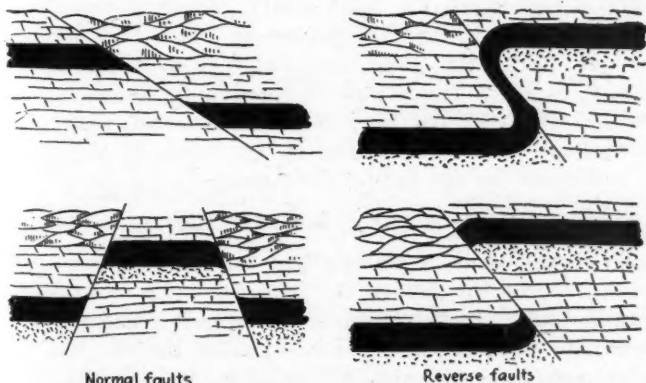
Illustrating Two Types of Faults—Conditions Affecting Their Formation—Simple Rules for Finding the Coal Beyond a Fault

IF NOT too late, kindly allow me to refer to a matter that was discussed some time ago, in *Coal Age*, in reference to finding the coal beyond a fault. Following that discussion, I remember that an inquiry appeared, in these columns, where a correspondent presented a faulted proposition, encountered in the working of a coal seam, and stated that he was puzzled to locate the continuation of the seam.

A little later (*Coal Age*, July 5, p. 18) a correspondent drew attention to the fact that the fault plane may have any direction with relation to the plane of the seam, the strike lines of the two planes not necessarily being parallel, as has generally been assumed in treating the subject.

To my mind, this last contribution has not simplified the matter for the practical miner who suddenly runs up against a fault that has cut out the coal. The solving of the problem, as it occurs in coal measures, does not require a technical education. As far as the practical miner is concerned, it is simply a matter of observation and the following of a simple rule.

Referring to the accompanying figure, there are two general types of faults of dislocation. The two faults



Normal faults
Reverse faults
CHARACTERISTIC FAULTING OF COAL SEAMS

shown on the left of the figure are those commonly met and known as normal faults. On the right of the figure, are shown two reverse faults, one in which the seam is continuous having been doubled on itself, while in the other the continuity of the seam has been broken by the slip in the strata.

In the case of a normal fault, the slip has taken place in such a way that the two portions of the seam have been pulled apart horizontally and there is no overlapping as in the case of a reverse fault, where the

pressure has been exerted in a manner to produce buckling in the strata.

In the latter case, the strata, including the seam of coal, may simply be folded on itself, in the form of a letter S. At other times, the action is so sharp as to rupture the strata and destroy the continuity of the seam. In any case where rupture has occurred and the seam is not continuous, there is always left, however, a telltale drag or bending of the strata in the line of fracture, which shows the direction in which the movement has taken place.

While there is no way of telling how great the displacement has been, without drilling through the strata or prospecting the place, there are two simple rules that if followed will always lead to the continuation of the seam. A study of the figure will show that when the fault is normal one must follow the wide angle; but, in the case of a reverse fault, the rule is to follow the smaller angle that the seam makes with the plane of the fault.

M. C. BUTLER.

Carbonado, Wash.

Entering Abandoned Mines

Fatal explosion of gas when men entered an abandoned shaft—Need of law forbidding persons entering such places without the written consent of the mine inspector.

WHEN reading the account in *Coal Age*, Aug. 23, p. 285, where six men entered a 200-ft. shaft known as the Marcoll mine, near Clarington, Ohio, Aug. 2, 1923, I was deeply impressed with what seemed to be the careless statement reported as having been made by an engineer who visited the mine two days later.

In the last paragraph of the article, it is stated that the engineer regarded the explosion as a "deplorably unfortunate occurrence, with no blame to be attached to any one." It quoted the engineer as saying further, "It is easy now to say that the shaft should have been ventilated and safety lamps used; but who would ever have perceived that necessity before the explosion happened?" I want to ask: "Why Not? Are not mining men supposed to be on the alert when undertaking to enter abandoned places where dangers lurk?"

DISREGARD OF KNOWN DANGERS

In this instance the party that entered the fatal shaft consisted of the general manager of the mine, his brother who had charge of the Rosemary mine nearby, an engineer of the Allen & Garcia Co., of Chicago, Ill., and three other men of Wheeling, W. Va. All of these men were intelligent men who might be supposed to understand the dangers they were about to face.

From the meager report given in the article to which I have referred, nothing is said in regard to whether the mine had generated gas previous to its

abandonment or whether the airshaft nearby was generating gas. Prior to connection being made between the two shafts, the mine was being developed and coal hoisted at the airshaft.

It was with the intention of making the abandoned shaft the main hoistway that the party entered that shaft to investigate its condition. The result was that the general manager and a salesman for the Gee Electric Co., Wheeling, W. Va., have since died from their burns and two others of the party are in a serious condition.

The flame of the explosion is said to have shot to a height of ten or fifteen feet above the top of the shaft. One can only conjecture as to where the gas came from. The shaft had only just been drained of the water that had accumulated and risen to a considerable height during the two years since work was abandoned therein.

WHAT HAPPENED WHEN THE MEN DESCENDED

The day of the explosion, the water had been lowered to within 2 ft. of the bottom, and it is probable that the entrance of the six men who descended the shaft started a circulation that brought the gas from its lodgment to where it was ignited on their open lights.

Aside from the danger of meeting explosive gas, there was the possibility of encountering blackdamp. To climb down the stairs of this 200-ft. shaft, with open lights and without having previously made any attempt to ventilate the shaft and its 60 ft. of entry which had been driven, was an exceedingly reckless act on the part of mining men.

What little natural ventilation was produced by the movement of the men and the heat of their lamps and bodies, in descending the shaft, could not have supplied fresh air sufficient to dilute even a few cubic feet of the gas accumulated below, and it is possible that the mixture reached a highly explosive point.

Does not this incident, however, teach the lesson of the need of a law forbidding any one to enter an abandoned mine or shaft without notifying the district mine inspector and obtaining his written consent, which would involve the inspector's making an examination of the place before giving such permission.

Detroit, Mich.

GASTON F. LIBIEZ.

[This correspondent has drawn attention to an important consideration that should be incorporated in the mining laws of every coal-producing state. The law should make it a crime for any one to enter an abandoned mine or shaft, until the mine inspector of the district has been notified and has examined the place and given his written consent for those in charge to enter. Too often it has happened that lives have been lost through a reckless disregard of well known principles and regulations regarding safety.

In this connection, it may be stated that the Mining Laws of Ohio (Sec. 939) require that "the owner, lessee or agent of a mine shall give notice to the chief inspector of mines . . . when the working of a mine is commenced after an abandonment or discontinuance thereof for a period of more than three months."

If this was not done in the present instance it was a violation of the law. On the other hand, if notice had been given to the chief inspector of mines, advising him of the dewatering of this abandoned shaft with a view to its development, it would seem that the responsibility rested with the inspector. In any case, however, the shaft should not have been entered without first being ventilated and examined with safety lamps to ascertain if gas was present.—EDITOR.]

Careless Act of Fireboss Causes Disaster

Fatal explosion the result of one careless act—Responsibility does not rest on fireboss alone—Mine officials blamed for lack of supervision.

IT IS with deepest regret that we read, in *Coal Age*, Aug. 23, p. 296, of the terrible disaster which, judging from the evidence given before the coroner's jury at the inquest held a few days after the explosion, resulted from the seeming attempt of a fireboss to relight his safety lamp.

The sad occurrence happened at 8 o'clock, Tuesday morning, Aug. 14, in No. 1 mine of the Kemmerer Coal Co., Kemmerer, Wyo. At the time of the explosion there appears to have been 134 men in the mine, only 35 of whom escaped; and 99 lives were sacrificed to the heedless act of one whose duty it was to safeguard both the mine and the workers therein.

FIXING RESPONSIBILITY FOR THE ACCIDENT

Without more definite information than we have at present, it is impossible to pass accurate judgment on the unfortunate fireboss, who forfeited his life, and the higher mine officials, charged with the responsibilities of operating the mine in the safest manner possible.

On the fireboss rested the duty of performing his work intelligently and conscientiously, while on the shoulders of the management rested the responsibility of providing proper equipment and carefully supervising every operation.

The last report of the state mine inspector, made three months prior to the explosion, described the mine as being in good condition and the ventilation adequate. It was testified at the inquest that the lamp the fireboss had carried was found 12 ft. from the face of No. 7 room, on the thirtieth entry, and close to the body of the man himself. It is stated that the top and bottom of the lamp were found 2 ft. apart, while a match with the head burned off was lying but a few inches away from the bottom of the lamp.

The natural conclusion of these evidences is that the fireboss had taken his lamp apart, struck a match to relight the wick, and the flickering blaze had set off the gas, filling the place with flame from which there was no escape. There was no opportunity to warn the workers in other portions of the mine who, with few exceptions, were either killed by the force of the blast or suffocated by the deadly afterdamp.

WHERE THE FIREBOSS FAILED

We never read of an accident without, in our own minds, fixing the blame on some one who it appears was in fault. In this case, it would seem that the unfortunate fireboss should have known better than to attempt to light his lamp within 12 ft. from the face of the room where he was found, assuming that to be the case from the evidence produced. Such an attempt can only be characterized as heedless and reckless in the extreme.

On the other hand, we are left to wonder if the lamp of the fireboss was equipped with an igniter. The fact that the lamp had been taken apart would indicate that it was not; or that the igniter had failed to work. Again, it would appear that this fireboss was in the habit of carrying matches with him to relight his lamp when extinguished.

These conditions, at the best, reflect on the management in charge of the mine, for their failure to properly

supervise the work in every detail. The question arises, in this connection: Was the fireboss a competent and conscientious person, one worthy to be trusted with the important work of safeguarding the mine and its workers?

Here is food for thought that impresses us with a realization of the grave responsibility that rests heavily on the management of a mine when we think of a hundred lives being suddenly snuffed out by a seemingly unwarranted act of a responsible mine official.

In my own experience of firebossing for a period of ten years, I cannot recall a single instance when the mine foreman or the superintendent ever examined my lamp to satisfy himself that it was safe and properly used. I have known of firebosses who would clean the gauzes of their lamps with a corn cob and do other things equally bad and dangerous. Let our mine officials give closer supervision to every detail of the work and know that their firebosses are competent and men to be trusted.

Ashland, Ky. MINE OFFICIAL.

Inquiries Of General Interest

Practical Limitations in the Action of Siphons

Two Cases to Be Considered—Effective Head
Less than Atmospheric Head — Effective
Head Greater Than Atmospheric Head

More than once the question has been put to me, by coal operators and mine officials, asking, "Can a siphon have too much fall?" I have always argued that, the greater the fall in the discharge pipe, the greater would be the flow. In other words, my thought was that for the same size of pipe, the capacity of a siphon for handling the water increased with the depth of its fall. Some recent experiences, however, have shown me that this is a mistaken idea and there are limits beyond which the siphon will not do its most effective work. I shall very much appreciate seeing the matter explained in *Coal Age* and the conditions set forth that are needful to the successful operation of siphons under varying conditions.

MINE ENGINEER.

Lexington, Ky.

In the operation of every siphon there are two chief factors: 1. The lift or suction head, which is the vertical height of the summit or crown of the pipe line above the level of the water in the supply basin. 2. The fall of the discharge pipe measured vertically, which is the discharge head and is always the greater. The difference between the discharge head and the suction head is the effective head, which produces the flow of water from the upper, or supply basin, to the lower basin where it is discharged from the pipe.

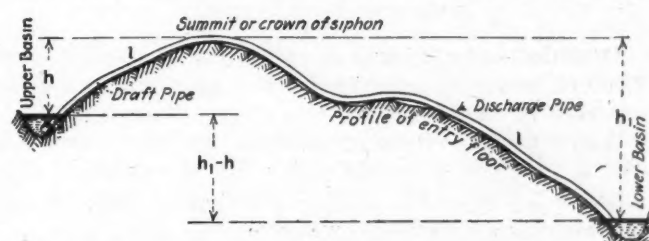
In practice, there are two cases to be considered; but, first, it is necessary to remember that the atmospheric pressure, acting equally on the surface of the water in each basin is balanced; and the effective head, or the excess of the fall over the rise in the pipe line, is the force producing the flow when the two branches of the siphon are acting as one.

As previously stated, there are two cases to consider. In the first case, the fall of the discharge pipe or the discharge head, minus the friction head in that branch of the pipe, is less than the water column supported by the pressure of the atmosphere. When that is the case both the suction and the discharge pipes are kept full of water by the atmospheric pressure, and there is no

tendency of the siphon to empty itself or run dry, as it would if the discharge head less the friction head exceeded the atmospheric pressure. Therefore, in this first case, the pipe will always run full.

In the second case, the fall of the pipe line is so great that the discharge head, less the friction head in that branch of the pipe, exceeds the atmospheric head expressed in water column. At sea level under normal conditions, the atmospheric pressure being 14.7 lb. per sq.in. will support a water column of $14.7 \div 0.434 =$ say 34 ft. In order that the siphon shall run full in this case, the flow from the supply basin to the summit, under atmospheric pressure, must be equal to the flow from the summit to the discharge basin, under the gravity head or fall in that branch of the pipe.

Now, indicating the flow of water in the pipe by G (gal. per min.), the diameter and length of the short



ELEVATION SHOWING PROFILE OF SIPHON LINE

arm of the siphon by d and l , respectively, and the diameter and length of the long arm by d_1 and l_1 ; the effective head in the short arm is the atmospheric head (34 ft., water column, sea level), resisted by the gravity head or rise (h) and the friction head ($l G^2/800 d^5$). In the long arm, the effective head is the gravity head or fall (h_1), resisted by the atmospheric head (34 ft.) and the friction head ($l_1 G^2/800 d$), assuming a uniform diameter in both branches of the siphon.

But the velocity and quantity of flow (G), in each branch of the pipe (uniform diameter), is proportional to the head and inversely proportional to the mass moved or length of the respective pipe. Therefore, for an equal flow in each branch of the siphon, each effective head must be divided by the corresponding length of pipe l, l_1 ; which gives

$$\frac{34 - h}{l} = \frac{h_1 - 34}{l_1}$$

From this equation we have for the limit of fall of the siphon when the diameter of the pipe is the same throughout,

$$h_1 = \frac{l_1 (34 - h)}{l} - 34$$

In this last equation, it appears that the lift or suction head (h) of a siphon cannot exceed the theoretical water column supported by the atmosphere and the fall in the discharge pipe is dependent on the relative length of the two branches of the siphon.

To illustrate, assume a siphon pipe line at sea level, having a rise of 24 ft. in 100 ft. measured on the pitch, and the point of discharge, say 500 ft. beyond the summit. In this case, if the diameter of the pipe is uniform throughout, the fall from the summit to the discharge basin should not exceed $500/100 (34 - 24) = 34 = 16$ ft. If the fall is greater than this, the pipe will have a tendency to empty itself, the flow in the discharge end, under gravity, being greater than that in the suction end, under the pressure of the atmosphere.

In all siphon work, it is of the greatest importance to make all joints airtight and submerge both ends of the pipe, in order to prevent the entrance of air, which would find its way to the crown or summit and obstruct the flow. A good siphon line should always have means for tapping the air that escapes from the water and collects at the summit. This air is more troublesome as the limits of siphoning are approached.

Examination Questions Answered

Miscellaneous Questions

(Answered by Request)

QUESTION—An airway is 5×10 ft., in section, and 2,000 ft. long; the velocity is 400 ft. per min. Find the pressure in two ways.

ANSWER—The rubbing surface in this airway is $2(5 + 10)2,000 = 60,000$ sq.ft.; and the sectional area $5 \times 10 = 50$ sq.ft. Then, assuming a coefficient of friction, $k = 0.00000002$, we have

$$p = \frac{ksv^2}{a} = \frac{0.00000002 \times 60,000 \times 400^2}{50} = 3.84 \text{ lb. per sq. ft.}$$

The pressure can also be calculated from the quantity of air in circulation, which is $5 \times 10 \times 400 = 20,000$ cu.ft. per min. This gives for the pressure producing the circulation,

$$p = \frac{ksg^2}{a^3} = \frac{0.00000002 \times 60,000 \times 20,000^2}{50^3} = 3.84 \text{ lb. per sq. ft.}$$

QUESTION—Name the supplies required by law to be kept at all mines for the care of injured persons.

ANSWER—Besides the ambulance and stretchers required in Art. 7 of the anthracite law, there must be kept at every mine both woolen and waterproof blankets, oil for the treatment of burns, bandages, splints and linens.

QUESTION—Name and define the four electrical units that are in common use.

ANSWER—The four most common electrical units are: The ampere, expressing the strength of the current or the volume of the flow of electricity; the volt, expressing the pressure or difference in potential of the current; the ohm expressing the resistance offered by the conductor, as measured in terms of the ampere and the volt. A current of one ampere flowing under a pressure of one volt represents a resistance of one ohm. The watt is the unit of electrical power, or the power consumed in transmitting a given current against a given resistance, or under a given pressure or voltage.

QUESTION—A fan driven by a steam engine supplies air in a mine through several miles of air-course. A door is suddenly opened allowing the air to go directly from the air shaft to the return. Will the opening of this door cause any change in the operation of the fan? Give the reason for your answer.

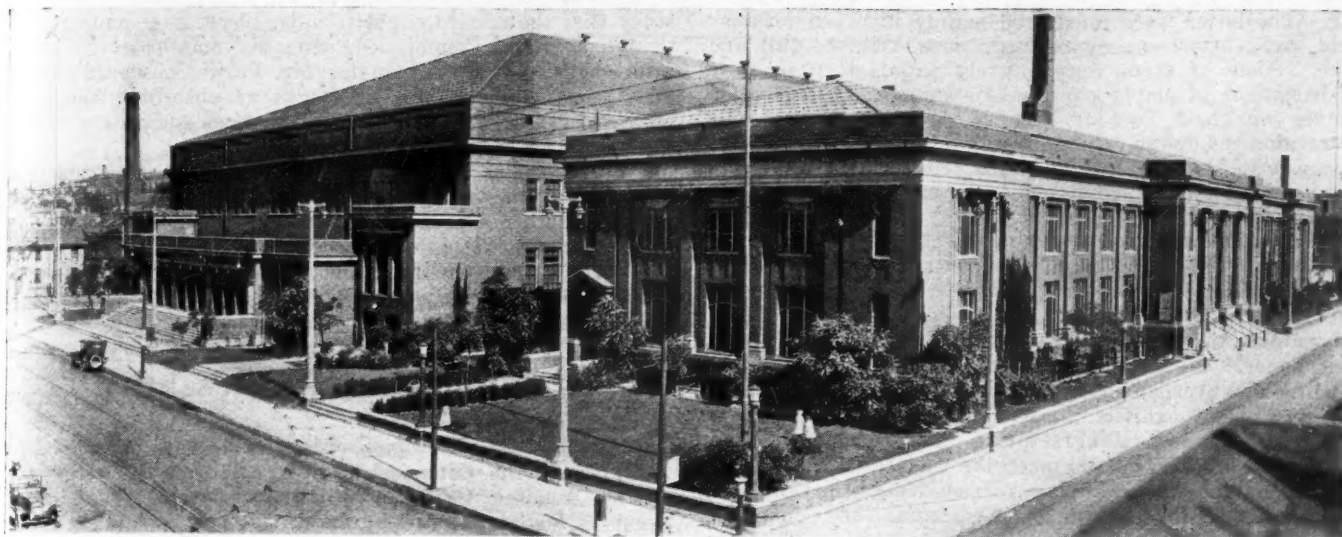
ANSWER—The opening of the door at the shaft bottom short-circuits the air current and cuts out the mine resistance against which the fan was previously operating. This decrease of resistance is followed at once by a fall of pressure and a large increase in the quantity of air flowing through the fan, increasing the resistance to its passage between the blades, which means an increase in the power absorbed within the fan itself. As a consequence, there is a less power available for starting the fan which will run slower under these conditions. In other words, when the air is short-circuited, by opening the door at the shaft bottom, and the mine resistance cut out the speed of the fan will be reduced, for the same power applied to the fan shaft.

QUESTION—(a) Give a full description of a safety lamp. (b) What are its essential characteristics? (c) In what condition and under what circumstances may a safety lamp be unsafe?

ANSWER—(a) The safety lamp, as used in coal mining, consists of a brass or steel oil vessel surmounted by a chimney, which may be composed of a glass cylinder surrounding the flame and carefully fitted to its seat on top of the oil vessel. Above the glass cylinder and resting on it are one or more gauzes having more or less a conical shape. Asbestos washers are placed above and below the glass cylinder to form an airtight joint and exclude the outside air at those points. The chimney is held in place by means of upright standards firmly attached to the oil vessel and surmounted by a metal disk or plate to which the handle of the lamp is attached. This in brief is the description of a common safety lamp for general use.

(b) The essential characteristics of a safety lamp are the isolation of the flame of the lamp from the outside atmosphere. The gauze-protected openings below the flame, in most lamps, and the wire-gauze chimney above the glass cylinder provide for the necessary ascensional circulation within the lamp, which is important in order to prevent the smoking of the flame and essential to a maximum illumination. In practice the gas-charged air enters the lamp and the gas burns within the combustion chamber while the flame is prevented from passing out through the chimney by reason of the cooling effect of the wire gauze. The flame of the burning gas is extinguished in proximity to the gauze as long as the latter remains cool. The cooling effect is assisted by the wire mesh only permitting small streamlets of the gaseous products to pass, which are thus more readily cooled below the point of ignition of the gas and the flame extinguished before it can reach the outside of the lamp.

(c) A so-called safety lamp is unsafe when improperly handled by an incompetent person. It is unsafe when improperly assembled or any of its parts omitted, or when the gauze is dirty or injured in any manner, or has become heated so that its cooling effect is destroyed. This happens when the lamp is exposed to a gas-charged atmosphere for too long a period. The lamp is unsafe when exposed to a strong air current or any sudden compression of the air that might blow the flame of the lamp through the gauze.



Milwaukee Auditorium, Where American Mining Congress Sessions Were Held

American Mining Congress in Slim Session at Milwaukee

Devotes Much Time to Coal Industry and Its Problems in Small Convention—Taxation and Labor Relations in Foreground—National Mine-Equipment Exposition Makes Good Appearance

Coal was one of the principal interests at the 26th annual convention of the American Mining Congress at Milwaukee, Wis., Sept. 24 to 29. The sessions gave opportunity for J. C. Brydon, president of the National Coal Association, and other nationally known operator spokesmen to set forth facts about bituminous and anthracite, freely prophesying serious trouble for the bituminous industry next April, when the wage contract expires. Mechanical problems of coal operation, especially with reference to underground loading machines, absorbed a good deal of attention and the machinery show, around which the convention centered, was largely an exposition of coal-mining equipment.

So a good deal of information about coal, from taxation to labor relations, was disseminated, even though the Congress, in its resolutions, mentioned coal but once—favoring a 75c. reduction in ocean freight on coal or any other transportation improvement that will give American coal a better break in export trade. The coal industry asked nothing more in the way of convention action than that.

The convention had a comparatively small attendance—about 1,000 delegates and exhibitors registering, as compared with 2,400 last year—many of the sessions had few participants, and two or three minor ones were cancelled altogether. This and other considerations led the Manufacturers' division of the Congress to recommend that hereafter metal and coal conventions be held separately so that each group could concentrate and so that the convention cities could be in the heart of the particular field involved. This plan no doubt will be adopted. The details have not been worked out yet. It may be that the coal and metal conventions will be on alternate years or both in the same year. It is likely the 1924 convention and machinery show will be in San Francisco for the metal interests.

H. W. Seaman, of Clinton, Iowa, head of the Trojan Mining Co., a gold operation of Deadwood, S. D., was elected to the presidency of the Congress. His forceful personality is expected to be effective for the upbuilding of the Congress. The other officers for the coming year are D. B. Wentz, head of the Wentz Co., of Philadelphia, bituminous and anthracite miners and shippers, first vice-president; E. L. Doheny, of New York, second vice-president; L. S. Cates, of Salt Lake City, Utah, third vice-president. The executive committee is composed of President Seaman, Albert J. Nason, of Chicago, head of an important coal-operating company, and Sidney J. Jennings, of New York, retiring president of the Congress.

It goes without saying that J. F. Callbreath, of Washington, D. C., the energetic and effective secretary for twenty years, was retained. New directors are W. J. Loring of California; Hugh Shirkie, of Indiana; Stanley A. Easton, of Idaho; J. G. Bradley of West Virginia; L. S. Cates, of Utah, and F. S. Morse, of New York.

The main results of the convention, as measured by the official action alone, were several. In the hope of furthering the movement for better labor relations in mining the convention authorized a special committee to work out and put into effect a plan for offering to mining companies a course of training for foremen and bosses aimed to make better informed men of that important class of connecting links between employer and employee. If the mine operator is honest in his effort to cultivate the good will of his men and to give them a square deal all the time, it is thought that the foremen are the best agencies through which to work. If they understand the fair-minded operator's position they are one important defence against insidious attack by labor propagandists.

The Congress also favors some form of immigration restriction that will let in all the desirable aliens and keep out of this country the undesirables, as an aid to meeting man shortage in mining. This resolution was passed in spite of a declaration in an address by E. J. Henning, Assistant Secretary of Labor, that selective immigration cannot be made operative.

The Congress resolved in favor of a general investigation of the gold situation in this country to determine whether the gold reserve is too small and whether the Treasury Department's policy of selling gold into commerce at what is said to be less than the cost of production, should be discontinued. A committee is to be appointed to study the matter.

Other resolutions protested against government interference in business, called for better efficiency and less needless waste in state and local government to reduce taxation, reaffirmed the Congress' position against selling the Muscle Shoals government power plant to Henry Ford, a sale which the Congress would construe as an indication of unsound government policy on Southern water-power development, taxation resolutions mentioned later in this report, and various lesser ones.

The convention centered its attention upon industrial co-operation, standardization of mining methods and equipment, taxation, oil shale, and mechanical problems of min-

ing. The latter were considered mainly in "open forums" held every afternoon where discussions could be full and free. Some of them were entirely satisfactory in spite of battalions of empty chairs. An industrial co-operation dinner was held Tuesday evening the 25th, a vaudeville entertainment by the exhibitors was given Wednesday evening where graceful legs twinkled, and where jazz band music, song and funny story strove more or less futilely for attention amid a happy but entirely respectable hubbub, and a banquet Friday evening closed the convention.

Although delegates and attendants of the Congress' convention began reaching Milwaukee as early as Friday, the 21st, the convention did not formally open until Monday night, the 24th, as reported in last week's issue of this paper. On a band stand in the side balcony at the Auditorium, overlooking the comparatively quiet machinery and equipment exhibits, Max W. Babb, vice-president of the Allis-Chalmers Manufacturing Co., introduced Mayor Daniel W. Hoan, who welcomed the Congress on behalf of the city, and E. L. Phillips, a former Wisconsin Governor, on behalf of the Milwaukee Association of Commerce. The good feeling of the mining interests and government of Mexico toward the Congress was expressed by Señor Moises Perogordo y Lasso, representing the Mexican Department of Commerce, Industry and Labor, and by Señor F. Roel, Mexican Consul General.

CO-OPERATION MESSAGE FROM PRESIDENT COOLIDGE

Sidney Jennings, president of the Congress, who is head of the United States Smelting & Refining Co., of New York, responded gracefully to the various welcomes and then read a short message from President Coolidge in which the nation's chief remarked upon the importance of mining in this country, urged everybody concerned in mining to co-operate fully to reduce both economic waste and loss of life in the industry and closed by extending his good wishes to the Congress and "my congratulations on the prospect for a long session of improving business conditions." Then Mr. Jennings formally declared the convention and its attendant machinery show open.

Beginning Tuesday each morning of the week was given over to a general session of the convention while the afternoons were devoted to two or more separate divisional meetings, and open forums on practical equipment problems.

At the Tuesday morning general session President Jennings read his annual report, summarized in these columns last week. It was an appeal for less waste in mining, for better labor relations, and a short review of the work that had been done by the several divisions of the Congress during the year. He said that although the Congress had entered the year with a deficit, the receipts totaled \$179,000 and the deficit had been practically wiped out.

A dark picture of the anthracite situation and its future was painted by E. W. Parker, director of the Anthracite Bureau of Information, of Philadelphia. That accomplished publicist said his industry has just suffered a violent attack of "governmentitis," has a hangover of indigestion and will no doubt continue to suffer from it for years. The misrepresentations about anthracite, he deplored. This keeps up even though the average investment in anthracite plants per ton of coal produced is \$8.50, according to R. V. Norris, an independent engineer, and the average profit is but 25c., or only about 3 per cent. Yet anthracite operators are condemned as robbers fattening gluttonously off of a helpless public, and a few special cases, unfortunate for but not representative of the industry, have given basis for the charge.

Mr. Parker had much gentle sarcasm—and some not so gentle—for the U. S. Coal Commission. He cited an instance of the publication of the fact that the average realization on anthracite during the last quarter of 1922—naturally the best quarter of the year for the industry, and the one which levels up earlier low spots—was \$1.05. The public got the impression that this is a constant average. An investigator for the Commission told Mr. Parker he had prepared a long-term average which should have been used for the purpose, but which wasn't.

He spoke with feeling about the Pinchot settlement of the recent strike. Governor Pinchot found after four days'

study that the miners ought to have 10 per cent more pay, though the Coal Commission, after six months of it, had said wages were high enough. Mr. Parker observed that, while the Governor proposed ways of absorbing the increased cost of anthracite, there was no suggestion that the state's anthracite tax be reduced.

The anthracite industry must soon go into a period of decline, he said, because the available supply is decreasing and there are no more deposits to exploit.

Reverting to the Commission's report, Mr. Parker could not refrain from saying he noticed that the Commission didn't appear to have much confidence in the Federal Trade Commission, or it would not have proposed that coal be put into the hands of the Interstate Commerce Commission. He said it was gratifying, however, that no new bureau was suggested, for what this country needs now is fewer bureaus and more sideboards.

The smokeless coal region operators are disappointed in the work of the Commission, George A. Wulff, secretary of the Winding Gulf Operators Association, said. His members last year voted by only a narrow margin to furnish statistics to the Commission, but those statistics and a good many recommendations were supplied fully and freely.

"We had a notion this week," said he, "to request that the information be sent back to us. I believe it surely would have come back in the original packages. The Commission must never have even opened them or it wouldn't have drawn some of the conclusions it did." The smokeless operators do not feel like submitting without a court trial to some of the Commission's proposals for control of coal, he said.

About forty men attended the Tuesday afternoon meeting of the industrial co-operation division, where the important question of labor relations was discussed. The conclusion to be drawn from the meeting was that the most important things that can be done just now to put more harmony into such relations are: First, for the employers to develop in their own breasts an honest desire to see their workmen get an absolutely square deal, and second, to convince foremen and mine bosses of that and train them how to handle the men they boss.

WORKS FOR BETTERMENT OF LABOR RELATIONS

Some active work has been done during the past year by the Congress to further the cause of better relations. W. A. Grieves, of the Jeffrey Manufacturing Co., chairman of the industrial co-operative division of the Congress, read a report showing that in twenty-eight states subcommittees have made surveys, are encouraging such co-operation between men and employers and are telling the public about it. Mr. Grieves said the average mine operator has just a little bit more desire to set up good feeling and mutual understanding between himself and his men than the average factory owner has. But the public does not believe it. Various agencies, stimulated mainly by professional union leaders, have spread the spirit of discontent as far as possible by misrepresenting the operator. But mining is said to have 50 per cent too many men in it still, which indicates that the conditions therein must not be so bad after all or men would not stick.

Mr. Grieves read a questionnaire which has been sent out to employers, and summarized the responses. This indicated, among other things, that out of a group of sixty-two replies, twenty-eight have a definite and complete plan of industrial relations working and only eight are not entirely satisfied with their results. Mr. Grieves urged that the Congress put someone permanently in charge of promoting industrial relations, for it is a big job and well worth the whole time of a good man.

Norman W. Schlichter, a man who has circulated for twenty years through many industries to encourage better relations between employer and employee, declared the American public believes that nine-tenths of industrial management is wrong and that labor is nine-tenths right. This is due, he said, to propaganda put across by publicists, preachers and reformers at the instance of union leaders. This thing is growing, because labor leaders have learned that the insistent voice is the one that is believed.

Resolutions Passed by the American Mining Congress

Favoring appointment of a committee to develop and put into service a training course for foremen and other section executives in coal, metal and other mining industries.

Favoring appointment of a committee to investigate the present gold situation and to recommend such measures as seem best able to protect the gold standard in the United States and throughout the world.

Favoring selective immigration, operative prior to embarkation, or such other procedure if a better plan be proposed, as will tend to increase the proportion of workers among aliens admitted to the United States to the end that mining and other industries may have a better labor supply.

Favoring co-operation in any transportation movement which will benefit the bituminous-coal industry of the United States in its export trade, investigation showing that if rates on overseas shipments of coal were lowered 75c. a ton America could compete with Great Britain.

Favoring uniformity of blue-sky laws, aid for small operator

to help him raise capital, and condemnation of "the intent and purpose of such measures as the Denison blue-sky bill."

Denying that the producers of silver seek an unfair interpretation of the Pittman Act in their protest against the Treasury Department's revoking of silver allotments for subsidiary coinage.

Tendering the support of the Congress to the movement for the organization of a silver export association.

Urging the reduction of state and local taxes, abolition of all double and super taxation and the creation of a tax court of appeals to work independent of the Bureau of Internal Revenue at Washington.

Reaffirming the 1922 position of the Congress in favor of a sound economic policy for the development of water power in the South to prevent power monopoly.

Urging a joint commission to facilitate the co-operation of this country with Mexico in the development of Mexican mining properties.

Employers must be the ones to raise that insistent voice in the future if they would retain control of their own industries and property. The truth about the present industrial order must be put across to the public. By publicity, missionary work and through good, wholesome and honest relations with labor, they must teach their labor the origin of capital, the political rights of labor and the improvement that labor has made under the existing system in this country. This, he said, can best be done through training of foremen and bosses.

Secretary Callbreath of the Congress emphasized the importance of foremen training. By a vote of the meeting a subcommittee was created to consider and report on whether the Congress should prepare and offer such a course. A. B. Jessup, of the anthracite wage scale committee; Mr. Wulff and George R. Stahl, of Denver, Colo., named on that subcommittee, reported that evening to the Congress at the industrial co-operation dinner that a permanent committee be created to work out a plan and put it into effect during the coming year.

The 200 men and women at the industrial co-operation dinner heard a good deal about the unreasonableness of union labor from Lawrence F. Abbott, publisher of *The Outlook*. Mr. Abbott spoke with keenness and good humor about the difficulties of employing union pressmen.

He thinks it probable that the early abuse of power by capital is what turned the union into a fighting organization, but whatever the reason, capital now should do everything it can to remove the causes of the present state of war. Arbitration and employees' elective representation in industry are the best methods. But they cannot succeed in mining unless mine operators get thoroughly sold on the idea of reciprocal relations. There is no other road to permanent industrial peace.

DEFENDS EXISTING SYSTEM OF IMMIGRATION CONTROL

A defence of the present system of immigration control was offered by Edward J. Henning, Assistant Secretary of Labor at Washington. Mr. Henning put a good deal of force into his talk and held his audience well. He deplored the fact that so many big employers want unrestricted immigration, saying that cheap labor of the sort admitted with the Ellis Island bars clear down is merely European refuse and is, in the long run, the most wasteful, most undependable and most expensive labor there is, not to mention its unhealthy effect upon the blood and stamina of the nation.

Selective immigration, so much desired by many other employers, cannot be practiced, he said, because of the national pride of the other countries. He said the only sound answer to the present shortage of labor is limited immigration, a better distribution of the labor already in this country and more manual training for the upcoming generations.

Wednesday morning's general session centered upon problems of the coal industry. Albert J. Nason, head of the Illinois Coal Corporation, presided. The first address was that of John C. Brydon, president of the National Coal Association, which appeared in full in last week's issue of *Coal Age*. Phil H. Penna, secretary of the Indiana Bitu-

minous Operators Association and a warhorse of national importance for a generation in the dealings between mine owners and miners, was scheduled to speak on "The Position of the Operators in the Central Competitive Field." He opened by declaring no man can tell what is the position of the Central Field operators for they do not themselves know from day to day, and that it is seldom possible for them to get a majority vote on anything. However, they come nearer agreeing upon the fact that the control of their own industry has been taken away from them than upon any other one thing. Collective bargaining in what remains of the field—part of Ohio, and all of Indiana and Illinois—while not perfect, has proved the best method that could be devised, he declared, and not only operators and miners but the public has benefited by it.

MINERS' UNION USING UPLIFTERS AND POLITICIANS

The only trouble with it now, he insisted, has nothing whatever to do with the method, but is that the miners' union has been able to make profitable use of the "damnable uplifters and truculent politicians" who have upset calm negotiation between men and operators. There is no such thing any more as real collective bargaining, he said.

In 1916 there was, though. Operators and miners then were able to make their own contracts and a certain large group of coal contracts made during that year showed Indiana lump averaging \$1.30 to the consumer, and screenings 80c. But since then the miners have learned that what they cannot get from the operators they can get from politicians at Washington. The effect of this on the price of coal to the consumer is known to everybody. The non-union policies that West Virginia, Alabama and other fields cling to so tenaciously now will some day prove the salvation of the whole industry, he declared.

In the Central Competitive Field there is no hope for relief soon from union domination, Mr. Penna said.

Mr. Penna knows a cure for all these labor ills in coal. Here it is: "If we all considered the rights of others and were willing to fight for our own rights, the problems would be solved. Unfortunately, in operators' ranks, there are always some who can see only the dollar. They wouldn't fight for their own rights, nor respect the rights of their employees. It is men like that who have forced the union to develop into the dominating thing it is today. But there they are, in the industry, and because of them it is necessary for others to be fighting labor all the time, foolish though that practice is.

"Some day the people of this country will get so tired of this fighting at their expense that a revival of true Americanism will occur—the kind of Americanism that makes a man give a square deal to all others and insist upon a square deal for himself. Then we'll have men in Washington with backbone enough to enforce the Constitution. The authority of the nation will recognize the right of men to organize and to refuse to work when they want to; and it will recognize the equally sacred right of men to remain unorganized and will protect them in that position. All this is merely 100 per cent Americanism."

An appeal that the truth about coal be told the public was made by F. D. Rash, of the St. Bernard Mining Co., of Kentucky. He was scheduled to talk about the relation of

transportation to the coal industry, but dismissed the subject of transportation with a brief word about the unbalanced condition of freight rates and then turned to labor and the interference of the politicians in coal problems. He said the volume of "bunk" handed the people of this country during every coal crisis is stupendous and often comes from such high places as to be severely damaging.

Anthracite came to the fore in the extempore speech of A. B. Jessup, of the recent anthracite wage-scale committee. He opened with a little more sarcasm for the U. S. Coal Commission by saying that public expenditures such as the \$600,000 spent by the Commission without result are good reasons for the depreciation of the value of the dollar.

Mr. Jessup declared government interference in the recent settlement of the anthracite strike gave the miners more than 100 per cent more than they really expected. He said the best they had hoped for was a 5-per cent increase in wages and this only on a long-term contract. But Washington passed the buck to Harrisburg and Governor Pinchot told the miners they were entitled to 10 per cent more pay because of the skill required by their work and the hazards of it.

A luncheon at noon for exhibitors and members of the Manufacturers' division of the Congress and a hilarious exhibitors' entertainment in the basement of the Auditorium that night wound up Wednesday's proceedings.

ATTACKS TREASURY'S WAY OF COMPUTING DEPLETION

Taxation got a good deal of attention during the convention, in several sessions of the taxation division. Paul Armitage, of New York City, one of the noted authorities on mine taxation and chairman of the general tax committee of the Congress, charged that the Treasury Department's only method of computing depletion is in disregard of the express terms of the law, which provides that a reasonable allowance for depletion and depreciation of improvements shall be granted according to the peculiar conditions of each case.

Wade Kurtz, of Joplin, Mo., reiterated the charge made previously that the government ignores established accounting practice, built up before income-tax laws were heard of, to meet the needs of short-life operations. He urged a protest against the rapid crystallization of ill-advised decisions by rules for which no official apparently is responsible. He said if the department would deal with actualities and not with fictions, they would get cases settled more promptly.

That the discoverer of a mine is justly entitled to a value for discovery which may be returned as capital representing the years of toil, hardship and expense in prospecting, exploration and development of the mine, is the view of George E. H. Goodner, of Washington. Mr. Goodner explained the discovery provision of the 1921 revenue act which has given the government as well as taxpayers much difficulty. This is another provision of law which the income tax unit partly ignores and thus defeats the expressed intent of Congress.

In the final tax conference of Friday, Walter A. Staub, of New York, explained many of the changes that have been made in the 1921 revenue act with reference to reorganizations, pointing out a number of conditions under which it would be of advantage for mining corporations to reorganize if they own property carried on the books at less than the present value and which are therefore unable to profit fully by depletion and depreciation allowances. Arnold R. Baar, of Chicago, spoke on taxation of dividends and other corporate distributions with particular reference to distributions from capital, from depreciation and depletion reserves, and from realized or unrealized appreciation in value of capital assets. All the taxation papers have been printed in pamphlet form by the Congress.

At the banquet closing the convention Friday night W. H. Finley, president of the Chicago & Northwestern Ry., made an appeal for a reduction in the legislative restrictions thrown around the railroads of the country, and declared that since wages form 80 per cent of all railroad expenditures, freight rates should not be reduced until wages come down.

Senator Irvine L. Lenroot, in his address on "Government in Business," said there is a powerful effort now being made to sovietize this country that has already led to an economic unbalancing by which one class tries to take all and leave nothing for the remainder of the people. This will eventually prevent prosperity. He appealed to the business interests of this country to take an interest in their government, not merely to satisfy their own immediate desires but with the future of the nation in mind. The best basis he can think of for this is an intelligent co-operation with labor and agriculture.

The technical side of the convention and the very good machinery exposition will be treated in a later issue of *Coal Age*.

Underground Loading Machines a Live Topic at Mining Congress

Failure to Provide Cars Fast Enough Handicap to Success—Modified Mining System Suggested—Concentration of Workings Cuts Operating Expense

Underground loading machines—the livest mechanical subject of the convention of the American Mining Congress—came in for discussion at the Thursday afternoon standardization conference after D. J. Carroll, engineer for the Chicago, Wilmington & Franklin Coal Co., had read a short report of the Congress' committee on mining and loading equipment. He said the committee made a futile effort to collect some complete data on the loaders now in service, and got reports on only 29 machines. In the discussion that followed it developed that there are nearly 200 loaders of various kinds now in service in the country, which moved Colonel W. R. Roberts, chairman of the standardization division, to say that the country has not waked up yet to the swift spread of these machines.

In his report Mr. Carroll said 24 of the 29 machines covered in his committee's scattered survey are Joys, 4 are Myers-Whaleys and one is a Goodman whose service has been discontinued. The two qualifications machines must meet, he said, are that they must not break down coal more than hand loading and they must stand the gaff of wear and tear. He stated it as the committee's opinion that the price of loaders must be lower. Machines now range from \$5,600 to \$9,000, which makes the average about \$7,500. A wage scale for machine operators is going to be hard to get. The present temporary arrangements in union fields cannot be maintained much longer. But cutting machines were recognized by the union after a long fight and loaders will win also.

N. D. Levin, chief engineer of the Jeffrey Manufacturing Co.'s mining department, said the biggest obstacle in the loading machine's way is the failure of operators to devise a scheme for getting cars to them fast enough. He doubts if it ever can be done on a room and pillar system. He thinks the mining system must be changed so that a loader can stay in one place and work continuously for a whole shift.

Mr. Carroll, who was about the only man to talk for the operators in the conference of about 50 machinery men, said the mine cannot afford to change its system until the machine has proved itself worthy of it, which it has not yet done. The best machine performance he had ever heard of was 150 tons a day. In Orient No. 2 mine of his own company, where there are 13 loaders—the largest single installation in the world—the best of them have loaded only 45 tons a day.

William Whaley, president of the Myers-Whaley Co., of Knoxville, Tenn., said one reason for such small production per machine was the fact that all of the machines in Orient No. 2 are on narrow entry work. In a lignite mine in Colorado, he said, one of his company's loaders averages 100 tons a day—a bulk greater than that of 100 tons of bituminous coal—and one in Tennessee, operating under perfect conditions, regularly loads 150 tons working only about 60 per cent of the time. This indicates that the loader, if given a chance, can get out a tremendous tonnage. In wide work a loader ought to handle 200 tons a day some

day soon, he said. Anything less than 100 tons a day is uneconomical. Training of crews is one way he advocated of raising the capacity of a machine.

Mr. Levin took the floor a few minutes to suggest that machines could be used to advantage in a modified room and pillar system if rooms were widened out to 200 ft. or more, supporting the roof with jacks when necessary. This would enable the loader to stay a whole shift in one place. Tonnage ought to be raised to 300 a day by that method.

The question of breakage by machines was raised. Mr. Levin said a loader his company had once maintained an average of 70 per cent of coal above 1½-in. size. Mr. Joy said his machines, working in the Pittsburgh seam, get as high as 70 per cent lump now.

The Joy machine is calculated for room and pillar work now, but the head of the concern guessed that eventually some other system will be adopted to increase not only the output of loaders but of cutting machines too. Cutters ought some day to cut as much as 600 tons a day, he thinks.

He explained the low tonnage performance of the Joys in the Orient mine—about 45 tons average—by the fact that they are able to run only about 20 per cent of the time. This is the lowest output of any of the 150 or 160 Joys in the country and they require more repairs than any others of the 52 working in the Middle West. The union labor handling the machines has absolutely no consideration for them, he said.

Defending the high cost of loaders, he declared operators have told him they save enough in miners' houses alone, where they reduce working forces by the use of loaders, to pay for the loaders. Loaders, he said, concentrate the working area of a mine to half the expanse operated ordinarily without them, thus effecting great economies of trackage, wiring, haulage time and power consumption. They also reduce the amount of timber used for props because a face is advanced so fast that roofs do not have so much time to weaken.

Governor Smith Begins State Coal Inquiry

Beginning an inquiry into the fuel situation in New York State Governor Smith on Sept. 30 asked Edwin J. O'Malley, Commissioner of Markets of New York City, and the men who acted as County Fuel Administrators for the State Fuel Administration last winter to supply information as to the anthracite supply, the prices being charged and for evidence of profiteering.

In his letter to Commissioner O'Malley the Governor said: "I am endeavoring to gauge the coal situation as it affects the State of New York and I shall appreciate your assistance in securing and forwarding to me at the earliest possible moment specific information on conditions in the City of New York."

George J. Eltz will represent the Coal Merchants Association of New York City in the efforts being made by the Department of Public Markets of the city to insure a supply of anthracite domestic coals and stability of prices, according to an announcement issued Sept. 28 by Mrs. Louis Reed Welzmler, Deputy Commissioner of Markets. Mrs. Welzmler has been conducting an investigation of the coal situation, fearing a serious shortage of domestic coals, and late in the week announced that arrangements had been made whereby householders could obtain a supply of coal and that efforts would be made to urge the operators to allocate a larger proportion of the output to New York City. There also was made public at the investigation a schedule of mine prices of several operators for domestic coals. They follow:

	Egg	Stove	Nut	Pea
D. L. & W.	\$8.75	\$8.75	\$8.75	\$6.25
Lehigh & Wilkes-Barre	8.75	8.75	8.75	6.25
Lehigh Valley	8.75	8.90	8.90	6.35
W. & P. (Erie)	8.95	8.95	8.95	6.15
Delaware & Hudson	9.00	9.00	9.00	6.15
P. & R.	9.15	9.15	9.15	6.60
L. C. & N.	9.25	9.25	9.25	6.50
D. & E. (O. & W.)	9.25	9.25	9.25	6.65
Weston Dodson	9.75	9.75	9.75	7.50
Hanna (Sus.)	9.85	9.85	9.85	6.75
Thorne Neale	10.25	10.25	10.25	7.40
Markle	10.45	10.45	10.45	7.50
Buckwheat, 1st Quality, \$3.50	Buckwheat, 2d Quality, \$2.50		Buckwheat, 3d Quality, \$1.50	

Lewis Condemns Coal Commission As "Most Inefficient of All"

Declares It a "Lamentable Failure"—Says
Its Recommendations "Fail to Encompass One
Great Object for Which It Was Created"

The U. S. Coal Commission has failed lamentably to help the coal industry and its recommendations "fail to accomplish the one great object for which it was created," according to a press dispatch of a statement by John L. Lewis, International president of the United Mine Workers, issued at his home in Springfield, Ill., Sept. 28. The death of the Commission, which expired Sept. 22, leaves the industry suffering from the same ailments and ills as was the case preceding its creation, the statement declares, adding that it will "go down in history as being perhaps the most inefficient of all federal commissions."

President Lewis' statement follows:

"The taxpayers of the nation should be deeply gratified to know that the life of the U. S. Coal Commission legally expired Sept. 22. The Commission has been in existence for a year and has succeeded in expending more than \$600,000 of the people's money. The work of the Commission in so far as the coal industry is concerned is a lamentable failure and has not even justified the existence of the Commission or the funds expended. Its report is a maze of well-worn generalities which could have been written by any well-informed mine superintendent within a sixty-day period.

"The Commission's recommendations fail to encompass the one great object for which it was created, namely, the stabilization of the coal industry as affecting both the opportunity for employment on the part of the miner, reasonable profits for the operator and a fair price of coal to the consumer.

"The death of the Commission leaves the industry suffering from the same ailments and ills as was the case preceding its creation by congressional enactment. It will go down in history as being, perhaps, the most inefficient of all federal commissions from which our country has suffered. It has, however, furnished positions of public distinction to a number of excellent gentlemen who know less about the coal industry than when they started investigating a year ago.

"The Commission surrounded itself with a large corps of needy college professors and so-called experts of the intellectual variety, who wrote reams of staff reports which have been from time to time given publicity. It is generally conceded that one can prove anything he chooses by reference to these staff reports.

"The fact that many of these reports contradict each other seems to rest very lightly on the shoulders of the Commission. The fact that these reports contain misstatements due to a woeful lack of knowledge on specific subjects is also of small concern to the Commission. The final report of the Commission should be duly filed and the dust of the ages allowed to collect thereon."

MEETINGS OF THE DIRECTORS and of committees of the National Coal Association, and of secretaries of member associations have been definitely arranged to be held at the Hotel Biltmore, New York, as follows: Policy Committee, 9:30 a.m., Tuesday, Oct. 9; Government Relations Committee, 12 noon, Tuesday, Oct. 9; Membership Committee, 2:30 p.m. Tuesday, Oct. 9; conference of secretaries, 3:30 p.m. Tuesday, Oct. 9; Directors, 9:30 a.m., Wednesday, Oct. 10; Publicity Committee, 12 noon, Wednesday, Oct. 10.

A MINING RECORD TO SHOOT AT.—Peter Stark, who has just completed seventy-five years' work at Thankerton colliery, Holytown, Lanarkshire, claims to be the oldest working miner in Great Britain. He has been employed in the colliery since he was nine years old and although is eighty-four years old, is still quite hale and hearty, and continues at his work. Mr. Stark can recall the time when women were employed in the mines.

Dr. Honnold Resigns Secretaryship of Illinois Operators' Association

Dr. F. C. Honnold, moving spirit of the Illinois Coal Operators' Association, offered his resignation as secretary-treasurer of the organization at its annual meeting in Chicago Tuesday. He has been willing to resign at previous annual meetings but the association has always prevailed upon him to continue the effective work in statistics and publicity which he has carried on to the great good of the organization. This time he told his associates, before the meeting, that his decision was final; so the association had no choice but to acquiesce. Rice Miller retains the presidency; Vice-President L. H. Smith has succeeded Dr. Honnold as treasurer and C. E. McLaughlin is the new secretary.

Dr. Honnold will remain a member. He is now the head of the Honnold Coal Bureau, a private enterprise collecting, compiling and distributing to operator clients data on production and distribution of coal in southern Illinois, a work which once as handled as a part of the association's services.

The association also was expected to go through the formality of approving the creation of a central policy committee to handle for the three Illinois associations all questions of labor, operators' relations and general policy both within the state and between Illinois and other states. The plan already is approved by the other two associations and by the executive committee of this association. The members are to be these: For the Illinois Operators' Association, President Rice Miller, L. H. Smith, E. C. Searls, W. J. Spencer and James Needham; for the Fifth and Ninth Districts Operators' Association, President C. S. Krause and Herman Perry; for the Central Illinois Operators' Association, President H. C. Adams.

Court Upholds Sale of Lehigh Coal Stock

A final decree in the sale of the stock of the Lehigh & Wilkes-Barre Coal Co. has been filed by the U. S. District Court at Philadelphia. The court dismisses the objections of Isaac T. and Mary T. W. Starr, minority stockholders of the Central Railroad of New Jersey, to the sale of the stock of the Lehigh & Wilkes-Barre Coal Co. to the Jackson E. Reynolds Syndicate of New York.

The decree, signed by Circuit Court Judges Buffington and Wooley and District Judge Thompson, is based on the recent decision of the court that it would not set aside the sale because the evidence had showed it was made in good faith and in conformity with the U. S. Supreme Court decree for the dissolution of the Reading and its associated companies.

Sixty days from Oct. 1 are allowed for the filing of an appeal from the decree.

Crowell Urges Release of Coal Commission Report on Retail Trade

Samuel B. Crowell, president of the National Retail Coal Merchants Association, in a letter to former Chairman Hammond of the U. S. Coal Commission Oct. 1, urged immediate release of the Commission's report on the retail coal trade, believing "that the public interest demands that your findings concerning the retail coal trade and any recommendations you may have seen fit to make, should be given publicity."

"It has been stated," continues Mr. Crowell's letter, "that the question of retail coal prices is a problem of the 'state' rather than the federal government, and that the Governor of each anthracite-consuming state is appropriately interested to determine whether fair prices on coal prevail within his jurisdiction and is properly desirous of correcting any improper conditions that may exist. As representing the retail coal dealers I therefore urge immediate release of this report, believing that its value will be enhanced by prompt circulation."

"I take this opportunity to state that our association has

welcomed the investigation of your body and is confident that your report will show that the retail coal business is a highly competitive business, conducted under difficult conditions and that the retail coal dealer is rendering a valuable service to his community, efficiently and with full regard for the public interest."

Hudson Coal Co. Workers Place Grievances In Hands of District Union Officials

Urged by Enoch Williams, secretary-treasurer of District 1, United Mine Workers, general grievance committeemen of the Hudson Coal Co. voted on Sept. 29 to place their grievances in the hands of the district union officials for settlement. A general strike in the mines of the Hudson company, affecting 20,000 men, threatened for a while, the workmen alleging that discrimination was shown in the hiring of laborers, and protesting against the inauguration of the "special test," and the refusal of the colliery officials to bring rate sheets up to compliance with the new agreement.

Utilities Consume 3,027,384 Tons of Coal in July; Slight Gain in Power Produced

Electric public-utility plants consumed 3,027,384 net tons of coal during July, according to a report just issued by the U. S. Geological Survey. This compares with 2,953,358 tons consumed during June, according to corrected returns.

Fuel oil consumed by public-utility plants in July totaled 1,161,644 barrels, compared with 1,035,715 barrels in June. The average daily production of electricity by public-utility power plants during July was 146,300,000 kw.-hr., a slight decrease over the rate for June.

The average daily production of electricity for the first seven months of 1923 and the proportion produced by water power were as follows: January, 153,300,000 kw.-hr., 34 per cent; February, 154,400,000 kw.-hr., 33.9 per cent; March, 152,500,000 kw.-hr., 36.3 per cent; April, 149,100,000 kw.-hr., 39.9 per cent, and May, 150,100,000 kw.-hr., 41.3 per cent; June, 151,100,000 kw.-hr., 38.9 per cent.

W. Va.-Ky. Mine, Mechanical and Electrical Engineers Meet at Huntington Oct. 19

The third annual convention of the West Virginia-Kentucky Association of Mine, Mechanical and Electrical Engineers will be held Oct. 19 and 20, at Huntington, W. Va. At the first session, on Friday, J. H. Edwards will speak on "Mechanical and Electrical Equipment Records." There will be a further consideration of "All-Rubber Insulated vs. Ordinary Braid Covered Cables for Portable Extensions, Locomotive and Mining Machine Cables, etc.," and then an open discussion on "Purchased Power vs. Individual Plants."

L. G. Mason, of the Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa., will speak at the afternoon session on "Construction and Care of Transformers," illustrating his address with slides. "What Can Be Done to Improve the Efficiency of Mine Pumping" will be another subject discussed at the session, and F. M. Reigher will speak on "What Service Are We Getting from Manufacturers in Supplying Repair Parts?"

The morning session on the last day of the convention will be taken up by a business meeting and addresses by M. A. Maxwell on "Hoisting Equipment" and J. J. Fluck on "Application of Fan Drives for Ventilation." An inspection of industrial plants will be made in the afternoon by the delegates.

AMONG THE CASES scheduled for early argument before the U. S. Supreme Court is the case of the Corona Coal Co. against the United States. This case involves the question of the proper basis of settlement for coal requisitioned by the Railroad Administration. It was dismissed by the Court of Claims for want of jurisdiction and an appeal was then taken by the coal company.

Operators Averse to Government Experiments with Their Industry as Suggested in Commission Report

Consumers Disappointed at Getting No Relief from High Prices or Guarantee of Steady Supply—Labor and Producers Object to Publicity of Accounts and Regulation—Supporters Realize Public Regards Report as a Dud

BY PAUL WOOTON
Washington Correspondent of *Coal Age*

Opposition in surprising volume has arisen to the recommendations of the U. S. Coal Commission. The objections to the findings of the Commission fall largely into two distinct classes. The public seems to be disappointed because it sees in the report no immediate relief from high prices and no guarantee as to constancy of supply. Labor and the operators object to publicity of accounts and regulation.

The reaction of the public is thought to be due to a considerable extent to the fact it feels that it has been preyed upon by the coal industry—operators, mine workers, wholesalers and retailers. It has not taken time to attempt to fix the degree to which each branch of the industry is culpable. Apparently the majority of the people were in a frame of mind where they wanted to see someone punished. As a result the non-punitive character of the report in no way appeases the thirst for revenge.

The operators do not object so much to the step as they do to its direction. They are not willing to admit the interstate status of coal-mining operations. They do not agree with Governor Marshall in his contention that the essentiality of the railroad car—the property of an interstate carrier—to mining operations is such as to place the whole enterprise under federal jurisdiction. Many operators, if not most of them, interpret their status to be the same as a manufacturer or a merchant and do not admit that the mere fact that they do not warehouse their product before shipping it in interstate commerce affects their legal position.

It is quite certain, say representative operators, that business generally would not submit to licensing by the Interstate Commerce Commission until they had exhausted every legal measure to prevent it. The Interstate Commerce Commission could survey the field and come to the conclusion that there are too many automobile factories and decide to withhold trackage from a new plant. The same procedure could be applied to every industry if it is proposed to exchange the benefits of consolidations for those of general competition. Without passing on the advisability of such a policy, the operators are certain that they do not wish to be picked out for the experiment.

OPERATORS DECRY UNFAIR REGULATION

The thought also is expressed among operators that any regulation would be unfair which does not follow the coal through to the ultimate consumer. The operator contends that he receives a smaller portion of the sum finally realized for the coal than any other branch of the industry. If operators alone are regulated, the chance of reducing the price would be comparatively small. Seventy per cent of the cost of the coal is represented by labor, which offers, they contend, a more fertile field for regulation. The effect of the Commission's report would be, they contend, to subject the operator to more regulation than any other branch of the industry. Moreover they believe that the service demanded by the public is responsible for a substantial portion of the price of coal, one of the elements of cost to which the Commission paid comparatively little attention. It also was pointed out that there are snow birds among the retailers just as there are in the producing branch of the industry. This latter effective contributor to the ultimate consumer's cost would be without regulation.

There also is a generally held opinion that coal can be moved only to its so-called natural market. There can be

no zoning against quality. Unquestionably, it was said, the cost of clothing could be greatly reduced were all men to agree to wear the same kind of cloth. Different needs and different tastes make this impracticable, but not more than any effort to prevent the movement of coal out of its own zone.

The operators admit that there are too many mines, too many mine workers, too many wholesalers, and too many retailers. They also call attention to the fact that there are too many grocers, too many undertakers and that there were too many lawyers when Governor Marshall was admitted to practice in Columbia City, Ind. They agree that great economies could be effected were it possible to reduce all trades and professions to some scientific basis which would save the public the costs of unnecessary overhead. The practical difficulties in the way, however, are regarded as such as to hinder progress along those lines.

PLAN WOULD OVERBURDEN COMMERCE COMMISSION

To vest the authority suggested in the Interstate Commerce Commission, in an opinion expressed in operator circles, would throw upon that agency more work than it could be expected to do. A comparable situation would be to abolish all appellate courts and allow all cases to come to the Supreme Court direct.

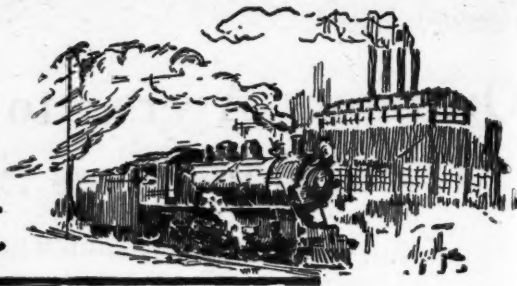
Those who think well of the report realize that the public regards it as a dud. They know it would be more popular had it appeared to be a live shell exploding with many casualties. Nevertheless they think it was wise for the Commission to prescribe a gradual cure rather than to make startling promises and attempt to perform a miracle. Consideration had to be given legal obstacles, for instance. Even had the Commission been so inclined, it might have recommended that it be made unlawful for the mine workers to strike. Such a recommendation might have gratified a certain element, but it would have run head on into the very sturdy stone wall which the Constitution of the United States has erected. Various curbs for the United Mine Workers of America might have been suggested but how could they have been put in force in the face of the decision of the Supreme Court of the United States in the Kansas Industrial Court decision, in which it is held that a man cannot be compelled to stay at his work and that wages may not be fixed compulsorily?

Refuse cars to wagon mines was another suggestion, but there again serious legal difficulties were in evidence. There also was the suggestion of giving 100 per cent priority to contracts. This failed to take into account how to supply the needs of the consumer who has failed to get delivery on his contract and who is estopped from purchasing spot coal. The legal obstacles even in requiring publicity of accounts are serious, as already has been demonstrated. The friends of the report believe that any commission of intelligent, honest men would have reached substantially the same conclusions were they to have before them the same evidence and were they to make the same careful analysis of it as was done by the late Commission.

The President is prepared to endorse the recommendations of the Coal Commission. It is stated at the White House that Mr. Coolidge expects to ask Congress to consider the legislation suggested in the report. The President also regards it as desirable that the public learn of the value of substitutes for anthracite. A greater use of other fuels, he believes, offers escape from high anthracite prices.



Production and the Market



Weekly Review

Activity in the coal market is centered in the anthracite situation. Demand for bituminous coal is dull and prices continue to go downward. Steam-coal buyers are practically out of the market in some sections, except when they can obtain coal at bargain prices, and industrial users in some instances have adopted a hand-to-mouth policy. The railroads have practically stopped adding to their reserve stocks, except on old contracts. A slight car shortage is reported in southern West Virginia and eastern Kentucky.

With most of the anthracite mines operating, coal is coming forward in good volume and demand for the domestic sizes is strong. Although the mines did not begin operations until Sept. 19, shipments during the balance of the week are estimated by the Geological Survey to have been 877,000 net tons. According to indications from early returns, during the week ended Sept. 29 they will amount to between 1,800,000 and 1,900,000 net tons.

OUTPUT AND MOVEMENT OF SOFT COAL STILL GOOD

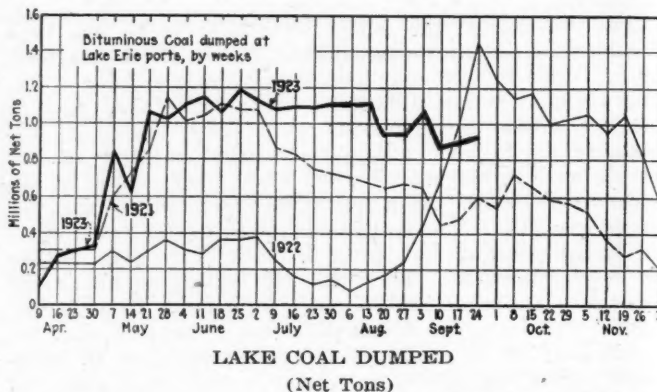
Production of soft coal continues above 11,000,000 net tons weekly, and during the last six weeks has averaged nearly 1,900,000 net tons daily. Movement continues good. There is not much activity in the steel industry and conditions are now being reached when new orders must be received or production must be reduced. On the other hand there are indications that textile plants are facing an upturn but reserve stocks of coal are so large that it will be some time before its effect could be felt in the coal market.

Operators and consumers are closely watching the outcome of the conference of railroad executives on the demands of the train and service brotherhoods for increased pay.

Coal Age Index of spot prices of bituminous coal at the mines declined to 196 on Oct. 1, compared with 200 the previous week. The corresponding average price was \$2.37, a decline of 5c. There were declines in

Pocahontas, southern Illinois, Pittsburgh, Springfield, Kanawha and Standard coals, and increases in eastern and western Kentucky and Clearfield coals.

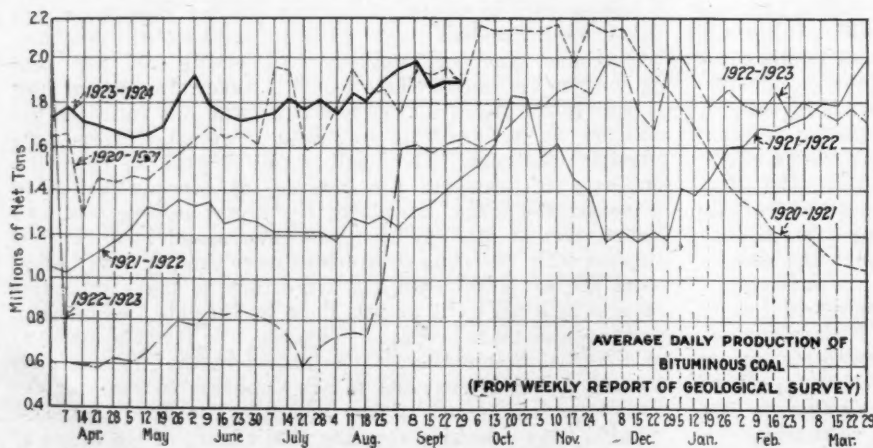
Weather conditions affected the Chicago market last week, but prices did not soften a great deal notwithstanding the dullness. Both the steam coals and screenings are draggy. Steam coals are the slowest moving in the Ohio markets and there is little hope for imme-



	Week Ended	Season to
	Sept. 24	Sept. 24
Cargo	822,981	21,227,841
Fuel	55,077	1,142,520
Totals	878,058	22,369,861

mediate improvement. Pittsburgh reports no increase in demand and offerings have been increased, resulting in lower prices. Operators are delivering a good tonnage on regular contracts, although some consumers wish smaller shipments. Consumers appear to be without interest. New England's steam-coal market is further depressed, and there are few signs of inquiry during October.

Coke and bituminous screened coals are practically out of the market as substitutes for anthracite. Prices have dropped and there is little inquiry. Welsh anthracite continues to arrive in small quantities.



Estimates of Production

(Net Tons)

BITUMINOUS

	1922	1923
Sept. 8	8,791,000	10,485,000
Sept. 15 (a)	9,737,000	11,378,000
Sept. 22 (b)	9,747,000	11,431,000
Daily average	1,625,000	1,905,000
Calendar year	1,162,000	1,793,000
Daily av. cal. year	261,193,000	402,105,000

ANTHRACITE

Sept. 8	51,000	3,000
Sept. 15	1,127,000	2,000
Sept. 22	1,897,000	877,000

COKE

Sept. 15	124,000	317,000
Sept. 22	139,000	327,000
Calendar year	4,623,000	14,174,000

(a) Subject to revision. (b) Revised from last report

Two contracts of 20,000 tons of coal each for shipment to France by Nov. 15 were reported to have been closed last week. This was regarded by some as indicative of an upturn in foreign demand. Generally, the export market is quiet and inquiries are few. Shipments from Baltimore during the week ended Sept. 22 totaled 11,785 tons, including 576 tons of bunker coal, while during the previous week the total dumpings, including bunkers, amounted to 16,054 tons.

Dumpings at Hampton Roads for all accounts during the week ended Sept. 27 amounted to 256,730 tons, a decrease of 112,423 tons when compared with the previous week.

Dullness Holds in Middlewest

In and around the Chicago market the prevailing dullness of the past two weeks continues. Warm weather has slowed down even the light but steady call for domestic coals, though the prices have not softened a great deal. But screenings have to be given away. Southern Illinois

has sagged to an average of \$1.25, with some unloaded at \$1.10. The top price of scattered sales of this coal is \$1.50. Central Illinois brings about \$1 and Standard district and western Kentucky fines are simply sunk. Much Standard "sells" at 60c. and west Kentucky unwashed screenings does little better. Railroad pressure is forcing the shipment of these coals at any price.

Around Chicago there is little doing in smokeless or anthracite. The new anthracite circulars showing company increases from 75c. to 90c. on the larger sizes have reached this territory. No fresh coal has reached there yet though it is expected daily.

With the close of September conditions are in a chaotic state throughout the southern Illinois field. The order issued by practically every coal carrier in Illinois to the effect that "no bills" would be counted as empties has had a depressing effect and this will directly be the cause of an advance in the price of the sizes that are easiest to move. Lump is moving fairly well, although some mines are long on it, but egg, nut and screenings seem impossible. Some mines have 100 cars of "no bills." Railroad tonnage is light, with mines working from two to four days a week.

Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F.O.B. Mines

Low-Volatile, Eastern		Market	Oct. 2	Sept. 17	Sept. 24	Oct. 1
		Quoted	1922	1923	1923	1923†
Smokeless lump.....	Columbus....	\$6.75	\$5.95	\$5.95	\$6.00@	\$6.25
Smokeless mine run.....	Columbus....	5.75	3.00	3.00	2.85@	3.35
Smokeless screenings.....	Columbus....	5.75	2.35	2.35	2.25@	2.50
Smokeless lump.....	Chicago....	6.35	6.10	6.10	6.00@	6.25
Smokeless mine run.....	Chicago....	5.85	2.85	2.85	2.75@	3.00
Smokeless lump.....	Cincinnati....	6.30	6.10	6.10	6.00@	6.25
Smokeless mine run.....	Cincinnati....	5.70	3.00	3.00	2.60@	3.00
Smokeless screenings.....	Cincinnati....	5.30	2.25	2.25	1.60@	2.25
*Smokeless mine run.....	Boston....	8.05	5.05	5.05	4.75@	4.90
Clearfield mine run.....	Boston....	4.50	2.15	2.15	1.85@	2.60
Cambria mine run.....	Boston....	4.75	2.85	2.85	2.50@	3.25
Somerset mine run.....	Boston....	4.60	2.35	2.35	2.00@	2.75
Pool 1 (Navy Standard).....	New York....	5.50	3.25	3.25	3.00@	3.50
Pool 1 (Navy Standard).....	Philadelphia....	.....	3.25	3.25	3.00@	3.50
Pool 1 (Navy Standard).....	Baltimore....	5.75	.....	.....	.....	.....
Pool 9 (Super. Low Vol.).....	New York....	4.85	2.50	2.55	2.25@	2.75
Pool 9 (Super. Low Vol.).....	Philadelphia....	4.60	2.65	2.55	2.45@	2.80
Pool 9 (Super. Low Vol.).....	Baltimore....	5.10	2.45	2.45	2.40	.....
Pool 10 (H.Gr. Low Vol.).....	New York....	4.65	2.15	2.15	1.90@	2.35
Pool 10 (H.Gr. Low Vol.).....	Philadelphia....	4.25	2.20	2.10	2.00@	2.30
Pool 10 (H.Gr. Low Vol.).....	Baltimore....	4.75	2.25	2.25	2.25	.....
Pool 11 (Low Vol.).....	New York....	3.85	1.85	1.85	1.75@	2.00
Pool 11 (Low Vol.).....	Philadelphia....	4.00	2.10	1.85	1.80@	1.95
Pool 11 (Low Vol.).....	Baltimore....	4.25	2.00	2.00	2.00	.....
High-Volatile, Eastern						
Pool 54-64 (Gas and St.).....	New York....	4.15	1.75	1.75	1.60@	1.90
Pool 54-64 (Gas and St.).....	Philadelphia....	4.25	1.80	1.75	1.60@	1.90
Pool 54-64 (Gas and St.).....	Baltimore....	4.15	1.75	1.75	1.60	.....
Pittsburgh se'd gas.....	Pittsburgh....	5.40	2.95	2.80	2.50@	2.65
Pittsburgh gas mine run.....	Pittsburgh....	4.25	2.50	2.40	2.20@	2.35
Pittsburgh mine run (St.).....	Pittsburgh....	4.00	2.25	2.15	2.00@	2.10
Pittsburgh slack (Gas).....	Pittsburgh....	6.75	1.50	1.40	1.20@	1.30
Kanawha lump.....	Columbus....	6.75	3.15	3.15	2.85@	3.50
Kanawha mine run.....	Columbus....	5.90	1.90	1.90	1.75@	2.00
Kanawha screenings.....	Columbus....	5.90	1.25	1.05	1.00@	1.10
W. Va. lump.....	Cincinnati....	6.25	3.60	3.75	3.50	.....
W. Va. gas mine run.....	Cincinnati....	.....	1.60	1.75	1.50@	2.00
W. Va. Steam mine run.....	Cincinnati....	.....	1.60	1.75	1.50@	2.00
W. Va. screenings.....	Cincinnati....	4.75	1.05	1.10	1.00@	1.25
Hooking lump.....	Columbus....	6.25	3.10	3.10	3.00@	3.25
Hooking mine run.....	Columbus....	4.90	1.95	1.95	1.75@	2.00
Hooking screenings.....	Columbus....	4.50	1.20	1.05	1.00@	1.10
Pitta. No. 8 lump.....	Cleveland....	4.85	2.60	2.60	2.20@	3.00
Pitta. No. 8 mine run.....	Cleveland....	4.40	2.05	2.05	1.90@	2.00
Pitta. No. 8 screenings.....	Cleveland....	4.10	1.25	1.25	1.10@	1.20
Midwest		Market	Oct. 2	Sept. 17	Sept. 24	Oct. 1
		Quoted	1922	1923	1923	1923†
Franklin, Ill. lump.....	Chicago....	\$5.40	\$4.05	\$4.15	\$3.75@	\$4.35
Franklin, Ill. mine run.....	Chicago....	4.75	3.00	3.00	2.75@	3.00
Franklin, Ill. screenings.....	Chicago....	3.85	1.55	1.40	1.10@	1.60
Central, Ill. lump.....	Chicago....	5.10	3.00	3.10	3.00@	3.25
Central, Ill. mine run.....	Chicago....	4.55	2.20	2.20	2.00@	2.25
Central, Ill. screenings.....	Chicago....	3.35	1.20	1.00	.90@	1.00
Ind. 4th Vein lump.....	Chicago....	5.25	3.35	3.35	3.25@	3.50
Ind. 4th Vein mine run.....	Chicago....	4.85	2.60	2.60	2.50@	2.75
Ind. 4th Vein screenings.....	Chicago....	3.85	1.45	1.35	1.30@	1.35
Ind. 5th Vein lump.....	Chicago....	5.10	2.75	2.75	2.65@	2.75
Ind. 5th Vein mine run.....	Chicago....	4.65	2.10	2.10	2.00@	2.25
Ind. 5th Vein screenings.....	Chicago....	3.60	1.25	1.05	1.00@	1.15
Mt. Olive lump.....	St. Louis....	.....	3.10	3.00	2.75@	3.25
Mt. Olive mine run.....	St. Louis....	.....	2.25	2.25	2.20@	2.30
Mt. Olive screenings.....	St. Louis....	.....	1.35	1.25	1.20@	1.30
Standard lump.....	St. Louis....	4.75	2.80	2.80	2.65@	3.00
Standard mine run.....	St. Louis....	3.75	2.05	2.05	1.80@	2.30
Standard screenings.....	St. Louis....	2.35	.95	.80	.60@	.60
West Ky. lump.....	Louisville....	5.50	2.35	2.35	2.50@	2.65
West Ky. mine run.....	Louisville....	3.85	1.95	1.90	1.75@	2.00
West Ky. screenings.....	Louisville....	3.55	.80	.85	.70@	.80
West Ky. lump.....	Chicago....	4.25	2.75	2.60	2.50@	2.75
West Ky. mine run.....	Chicago....	4.25	1.95	1.95	1.85@	2.10
South and Southwest						
Big Seam lump.....	Birmingham..	3.75	3.75	3.75	3.65@	3.90
Big Seam mine run.....	Birmingham..	2.75	1.95	1.95	1.75@	2.15
Big Seam (washed).....	Birmingham..	3.35	2.35	2.35	2.25@	2.50
S. E. Ky. lump.....	Chicago....	6.25	3.35	3.35	3.25@	3.50
S. E. Ky. mine run.....	Chicago....	4.75	1.85	2.25	2.00@	2.50
S. E. Ky. lump.....	Louisville....	7.00	3.10	3.10	3.00@	3.50
S. E. Ky. mine run.....	Louisville....	5.35	2.00	2.00	1.75@	2.25
S. E. Ky. screenings.....	Louisville....	5.10	1.05	1.05	.90@	1.25
S. E. Ky. lump.....	Cincinnati....	6.50	3.35	3.50	3.25@	4.00
S. E. Ky. mine run.....	Cincinnati....	5.10	1.55	1.60	1.50@	1.75
S. E. Ky. screenings.....	Cincinnati....	5.00	1.00	1.05	.80@	1.25
Kansas lump.....	Kansas City..	.....	4.50	4.50	4.50	.....
Kansas mine run.....	Kansas City..	.....	3.50	3.50	3.50	.....
Kansas screenings.....	Kansas City..	.....	2.60	2.60	2.50@	2.75

* Gross tons, f.o.b. vessel, Hampton Roads.

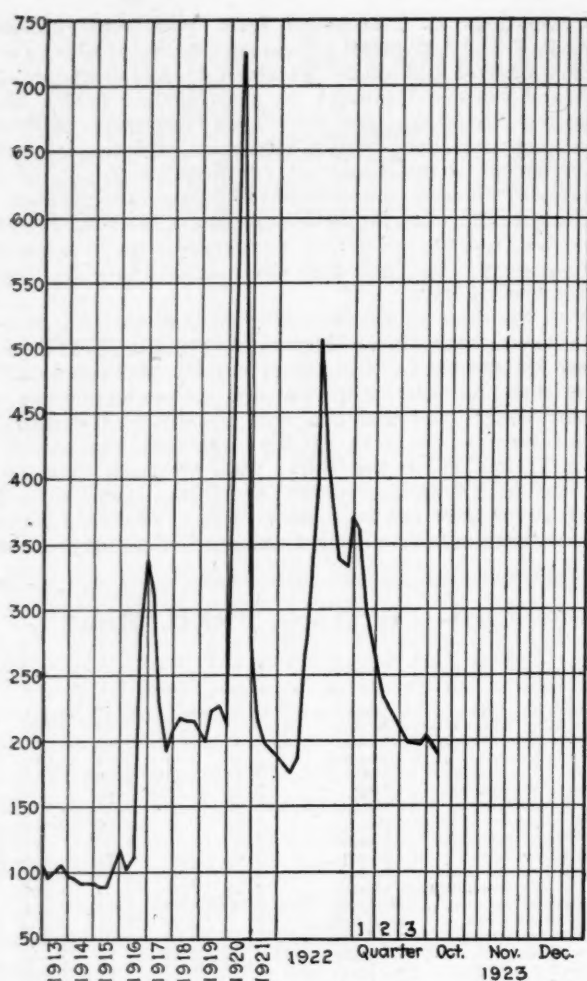
† Advances over previous week shown in heavy type, declines in italics.

Current Quotations—Spot Prices, Anthracite—Gross Tons, F.O.B. Mines

		Market	Freight	Dec. 26, 1922		Sept. 24, 1923		Oct. 1, 1923†	
		Quoted	Rates	Independent	Company	Independent	Company	Independent	Company
Broken.....	New York....	\$2.34		\$9.00	\$7.75@	\$9.60@	\$8.00@	\$9.60@	\$8.00@
Broken.....	Philadelphia....	2.39			7.90@				
Egg.....	New York....	2.34		9.25@	12.00	9.85@	11.50	9.85@	12.25
Egg.....	Philadelphia....	2.39		9.25@	11.00	9.85@	12.20	9.85@	12.20
Egg.....	Chicago....	5.06		12.50@	13.00	9.85@	11.50	9.85@	12.25
Stove.....	New York....	2.34		9.25@	12.00	9.85@	11.50	9.85@	12.25
Stove.....	Philadelphia....	2.39		9.25@	11.00	9.85@	12.20	9.85@	12.20
Stove.....	Chicago....	5.06		12.50@	13.00	9.85@	11.50	9.85@	12.25
Chestnut.....	New York....	2.34		9.25@	12.00	9.85@	11.50	9.85@	12.25
Chestnut.....	Philadelphia....	2.39		9.25@	11.00	9.85@	12.20	9.85@	12.20
Chestnut.....	Chicago....	5.06		12.50@	13.00	9.85@	11.50	9.85@	12.25
Range.....	New York....	2.34							
Pea.....	New York....	2.22		7.00@	11.00	6.75@	7.50	6.75@	7.50
Pea.....	Philadelphia....	2.14		7.00@	8.00	6.75@	9.00	6.75@	9.00
Pea.....	Chicago....	4.79		7.00@	8.00	6.25@	6.60	6.00@	6.75
Buckwheat No. 1.....	New York....	2.22		4.00@	5.00	2.75@	3.50	2.65@	3.60
Buckwheat No. 1.....	Philadelphia....	2.14		5.00		3.00@	3.50	3.00@	3.50
Rice.....	New York....	2.22		3.00@	3.25	2.25@	2.50	2.15@	2.60
Rice.....	Philadelphia....	2.14		2.50@	2.75	2.00@	2.50	2.00@	2.50
Barley.....	New York....	2.22		1.75@	2.00	1.25@	1.50	1.15@	1.50
Barley.....	Philadelphia....	2.14		1.00@	1.75	1.50		1.50	
Birdseye.....	New York....	2.22				2.10			

* Net tons, f.o.b. mines.

† Advances over previous week shown in heavy type, declines in italics.



Coal Age Index of Spot Prices Bituminous Coal F.O.B. Mines

	1923			1922
	Oct. 1	Sept. 14	Sept. 17	Oct. 2
Index	196	200	200	404
Weighted average price.....	\$2.37	\$2.42	\$2.44	\$4.89

This diagram shows the relative, not the actual, prices on fourteen coals, representative of nearly 90 per cent of the bituminous output of the United States weighted first with respect to the proportions each of slack, prepared and run-of-mine normally, shipped, and second, with respect to the tonnage of each normally produced. The average thus obtained was compared with the average for the twelve months ended June, 1914, as 100, after the manner adopted in the report on "Prices of Coal and Coke, 1913, 1918," published by the Geological Survey and the War Industries Board.

The independent mines are doing better than the Association mines, are getting better working time and moving some coal, although the price is much lower.

St. Louis Does Little Business

Conditions in St. Louis proper are disappointing to the coal trade. The public is not buying to the extent that was expected and such coal as is moving is independent high-grade coal. Country domestic business showed a little Standard. Anthracite has no call. Neither has smokeless. Coke shows little activity.

A check-up of dealers shows that several of them are paying less than the circular of \$4.35 for southern Illinois high-grade coal. Country domestic business showed a little improvement for a few days and fell off the last few days of the month. Country steam is not a factor any more. Local wagonload steam picked up, but carload is impossible and nothing is moving to speak of, excepting a little fine sizes to Omaha and Chicago.

Kentucky Prices Sag

Reports from all Kentucky fields show that prepared coal, especially in the larger sizes, is active, while steam coal is general draggy. Steam buyers are showing practically no interest in mine-run in view of the quantity and

quality of screenings available and the prices quoted, while movement of prepared coal to the Lakes and to retailers in various sections is resulting in a plentiful supply of screenings.

Western Kentucky pea and slack is quoted at 70c.@85c. in the Louisville market, with eastern Kentucky non-gas screenings at 85c.@\$1.15; best Harlan gas coal screenings \$1@1.25; good steam mine-run from both eastern Kentucky and western Kentucky, \$1.75@\$2, gas mine-run, \$1.90@\$2.25.

While a number of operators are trying to talk \$4 and \$4.25 block coal in eastern Kentucky, some are offering as low as \$3.50, for lump sells at \$3@\$3.50 and it isn't easy to sell block for more than lump. The market as a whole is about holding its own except on screenings, which are 10c.@20c. a ton lower for all fields than they were a week ago. Car supply is fairly good, weather conditions favorable, and movement could be much worse.

Northwest Trade Is Easy

Nobody in the Northwest appears to be worrying just now over any kind of fuel. A wave of warm weather took the life out of even the domestic anthracite business although little of this coal is to be had and dealers are not accepting big orders for it from anybody. The region served by the Head-of-the-Lakes needs only about 400,000 tons more of anthracite and feels dead sure of getting it. Prices have not changed at Duluth on any grade of hard or soft coal.

In Milwaukee, retail anthracite prices took a 50c. jump Oct. 1, notwithstanding the general protest against price and in spite of a state investigation now going on. Rural retail prices went up 70c. on domestic sizes and 20c. on pea. Minneapolis sees nothing cheering in the present situation but looks for a killing frost at any time. This would have the well-known "salutary effect" on a low market in which good southern Illinois lump has been selling for \$3.75, Hocking for \$6@\$6.25 and smokeless for \$6.25@\$6.50.

Receipts at upper lake docks have fallen low. September figures, not yet available, will show that month to have been the least active month of the summer and early fall. Only 35 cargoes of soft coal and none of hard reached Duluth last week. Heavy shipments in July and August have saturated the Northwest. At Milwaukee 630,419 tons of anthracite has already been received. Only 360,070 tons arrived during last year's short season. Soft-coal receipts also are almost as great, already, as they were last year.

Western Trade Is Better

The West feels a little better about coal. Cooler weather has covered the mountain region, where Colorado domestic coals have been moving in good volume and where screenings have not dragged as elsewhere. In Kansas City a better demand for the whole Southwest district is noted, so that prices on the most popular sizes are shading upward, though without a general advance yet. Kansas quotations are: Lump, \$4.50; mine run, \$3.50; screenings, \$2.50@\$2.75. Arkansas semi-anthracite is quoted thus: Lump, \$6.50@\$7; mine-run, \$3.50; screenings, \$1.75@\$2.

Ohio Markets Dull

Weather conditions have placed an important part in the coal situation in Ohio. Smokeless lump and egg and domestic sizes in high-volatile coals in the Cincinnati market are not in heavy demand, but so far have not been hit by the price concessions that have been made to keep other coals moving. So far there are no indications that the stagnation will affect the October quotations. Car supply has been waning and in parts of Kentucky mines have been running on a two-day-a-week basis because of this. Retail quotations range as follows: Pocahontas lump, \$10.50@\$11; run-of-mine, \$7.50@\$8.25; bituminous lump, \$7.50@\$8; run-of-mine, \$6.50@\$7, and slack, \$4.50@\$5.50. Mine quotations for West Virginia 2-in. lump range \$2.50@\$3, and for southeastern Kentucky 2-in. lump, \$2.50@\$2.75.

The Columbus market is quiet in all respects. There has been a let-up in the domestic-coal situation while steam demand is slack because of heavy reserves. Retail stocks are fair and there is not much disposition to increase them at present. Shipments from the Pocahontas and New River fields are being interfered with because of car shortage. The Southern Ohio Coal Exchange reports a production of 183,784 tons from 443 mines during the week ended Sept. 15. Car shortage caused a loss of 9,908 tons and no market a loss of 475,136 tons. Demand for bituminous coal in the Cleveland territory was quiet during the past ten days, some asserting that it has been many months since so few inquiries were received. Industrial plants that filled their bins because of the anthracite situation are now consuming that surplus. It is also suggested that the slack demand may be due to decreased operations, as well as the belief that bituminous coal will be available at present prices for some time to come. Car supply in the eastern Ohio field is adequate for all requirements.

Demand for coal in the Pittsburgh district does not seem to have increased. Offerings have increased, however, as operators run out of the extra orders they took in August, where there was some forward buying by usual hand-to-mouth buyers. There has been a disposition on the part of consumers with contracts to take smaller tonnages during this month, the most conspicuous instances by byproduct coke interests, some of whom are cutting down tonnages by 10 to 20 per cent. Increased offerings have affected prices and prices for slack have reached new low levels, sales having been made at less than at any time since last year's coal strike started.

Operators in central Pennsylvania declare that prices are down to rock bottom and in some instances below the cost of production. Business is dull. Offering at Buffalo are plentiful but demand is slow, with no indications of immediate improvement.

New England Market Depressed

In New England the steam-coal market is still further depressed. There are few signs of inquiry during October, and it almost seems as if the trade could not be in worse spirits than now. Pocahontas and New River are now freely quoted at \$4.90 per gross ton f.o.b. Hampton Roads for No. 1 grades, and several agencies have intimated that \$4.75 would be accepted.

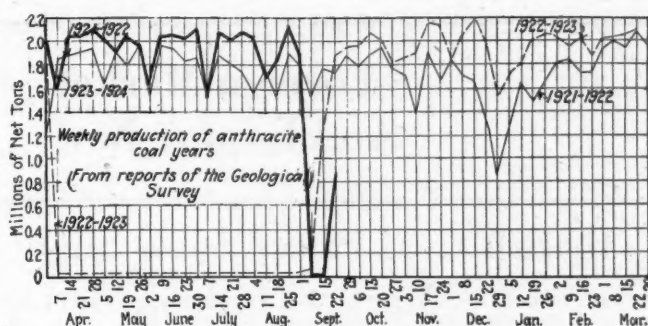
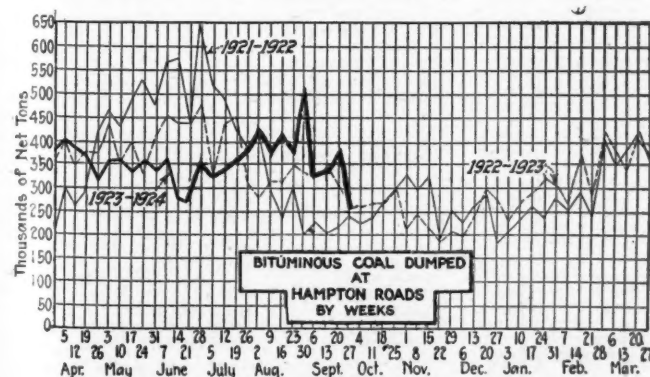
While there are indications now that the textile industry is looking up somewhat, the reserves of coal are large all along the line. In some of the cotton centers water is very low and this probably will be reflected later on in better inquiry for coal. However, it will be hard to see results from this until a month or two hence.

Both all-rail and by water there is virtual stagnation so far as spot deliveries are concerned. Factors who have coal afloat or in transit seeking the market may find hard going and today there are no bright spots anywhere.

A much reduced tonnage is being dumped at the New York and Philadelphia piers. A certain amount of contract coal is being shipped, especially to the railroads but for the industries generally in this territory movement is extremely light.

Seaboard Soft-Coal Market Slow

While the spot market for bituminous coal is quiet at New York, contract coals are moving in fair volume,



although some consumers holding contracts have asked that deliveries be lightened. The cheaper coals are scarce at the New York tidewater, most of the demand being for the better grades because of the low prices prevailing. At Philadelphia there is no activity. Prices remain soft and there are signs that they may go lower. Some distress coal is available. The railroads are storing coal on account of old orders. The market at Baltimore is flat, dealers reporting few orders. Dullness is apparent in West Virginia, with spot buying on a more restricted scale in all sections. Although car supply is ample for the needs of most mines there are instances, particularly on branch lines where mines are being handicapped by irregular supply. Production is being maintained largely by contracts, particularly those with the railroads.

Spot business at Birmingham is extremely light. Competition is keen and the smaller producers with no contracts are making some business at low prices. Operating conditions are being maintained in many instances because of contracts with railroads, utilities and industrial plants.

Soft-coal movement from Lake Erie ports during the week ended Sept. 23 were 878,058 net tons, as compared with 843,370 tons the previous week, an increase of 34,688 tons. Dumpings during the corresponding week of 1922 totaled 1,453,684 tons with cumulative shipments of cargo coal during the present season to Sept. 23 amounting to 21,274,219 tons, as compared with 17,690,177 tons in the corresponding period of 1921. There was no anthracite shipped by the Lakes during the week ended Sept. 23, the total shipments during the season to that date amounting to 2,375,212 net tons, which was approximately 1,000,000 tons less than in the corresponding period of 1921.

Anthracite Domestic Coals in Demand

All the larger companies having announced their new schedule of prices for domestic coals, the larger retail dealers at New York advanced their prices 75c. per ton to \$14.25 for the larger sizes. Demand for the domestic coals continues strong, but local retail dealers are not inclined to pay the high prices quoted by some of the smaller producers. While some quotations as high as \$13 were made late in the week the general market ranged between \$12 and \$12.25. Pea coal was easier, while the steam sizes were hard to move at company circular. Shipments are coming forward in fair volume. At Philadelphia consumers are not urging deliveries as strongly as a few weeks ago and in some instances when deliveries are made the coal is refused, the consumer saying he had gotten coal from another source or is in no hurry for it now. Stove and chestnut sizes are mostly in demand. Steam coal movement is slow. Quotations by one retail concern are: Egg, \$15.75; stove, \$16.25; chestnut, \$16, and pea coal, \$12.25. One New York retail concern received a cargo of Welsh anthracite last week which will be sold to consumers at the same price as domestic anthracite.

Car Loadings, Surplusages and Shortages

	Cars Loaded	
	All Cars	Coal Cars
Week ended Sept. 15	1,060,580	171,830
Previous week	928,858	152,996
Same week in 1922	937,221	171,460
	Surplus Cars	
	All Cars	Coal Cars
Sept. 15, 1923	69,080	19,790
Same date in 1922	22,969	17,614
Sept. 7, 1923	67,651	13,501
	Car Shortage	
	All Cars	Coal Cars
Sept. 15, 1923	12,245	6,478
Same date in 1922	10,501	5,595

Foreign Market And Export News

British Coal Prices Show Slight Decline; Market Outlook Better

There was a decrease of 75,000 tons in the coal production of Great Britain's mines during the week ended Sept. 15, a cable to *Coal Age* reporting the output to have been 5,245,000 tons, as compared with 5,320,000 tons the previous week.

Stormy weather seriously interfered with loading and caused losses in mining. Quotations show decreases.

The Welsh coal market is quiet again. The trouble between Italy and Greece, contrary to the general expectation had an adverse effect on the trade by leading to the practical withdrawal for several days of Greek tonnage, due to the fact that underwriters require heavy war risk premiums in respect of Greek steamers and their cargoes.

The situation in the United States anthracite field did not have any material effect on the Welsh market; a few market-testing inquiries coming through. There is plenty of coal of all kinds, the market is decidedly weak but operators indicate advanced figures for forward positions.

Anthracite is scarce and is bringing high prices. Unbroken large is 52s. 6d. per ton, and machine-broken cobbles and nuts 65s.

The Newcastle market is improving. Merchants holding coal are willing to sell at present prices, which show a considerable advance on those of August, but they hesitate about accepting business for October until they see how the market is going to shape.

Little has come of American inquiries, but the European market is expanding and business is brightening. All the best grades of steam and gas coals are heavily booked through this month.

Hampton Roads Prices Low

Business at Hampton Roads last week was slack, with exports dwindling in volume and general movement at the piers falling off. Shippers attributed the dullness to the disposition of consumers to use up supplies they were stocked with in anticipation of a prolonged strike in the anthracite region.

Domestic business showed improvement, while the coastwise trade held its own, with brighter prospects for the immediate future. The bunker business was normal, and showing promise of getting the benefit of the increase in general shipping.

The tone of the market was weak, prices having dropped to a lower level than at any other time this year.

United States August Domestic Coal Exports

(In Gross Tons)		1922	1923
Coal			
Anthracite.....	28,704	442,475	
Value.....	\$245,701	\$4,812,137	
Bituminous.....	425,530	2,117,084	
Value.....	\$2,880,201	\$10,542,796	
Coke.....	26,121	99,237	
Value.....	\$293,043	\$896,665	
Eight Months Ended			
August			
1922	1923		
Anthracite.....	1,049,534	3,270,104	
Value.....	\$10,833,068	\$35,443,144	
Bituminous.....	5,091,726	13,566,001	
Value.....	\$27,275,873	\$76,238,000	
Coke.....	220,809	837,240	
Value.....	\$2,025,287	\$9,303,952	

French Coal Market Satisfactory

The French coal market continues satisfactory. Demand for house and industrial coals is fair, with supply of the former below the requirements. Coal dealers in Paris report that their supply of British anthracite is scarcely sufficient to meet the demand, with comparatively little of Belgian and semi-bituminous coals on hand. Deliveries both of French and Belgian coals are slow. It is not expected that prices for French coals will change during October.

The rolling car crisis continues acute and the mines are lacking facilities for loading their daily output. Coal movement in the ports is slow.

During the first ten days of September the S. C. O. F. received 41,822 tons of coke from the Ruhr. Conferences are being arranged for between representatives of the French Government and the Commission for Reparations

looking to a revision of the mode of fixation of German requisitioned coke. Efforts will be made to readjust the prices to be paid for coke.

The Bankers Trust Co. of New York, has received from its French Information Service statistics showing that the production of the Sarre coal mines has been increased about 25 per cent under French administration. In 1919 these mines produced 8,758,356 metric tons and in 1922 this was increased to 10,943,311 tons, according to these statistics.

Export Clearances, Week Ended Sept. 29, 1923

FROM BALTIMORE

For Germany:	Tons
Ger. SS. Eisenach	3,569
For Italy:	
Jap. SS. Baltimore Maru	8,216

FROM HAMPTON ROADS

For Newfoundland:	
Amer. Schr. Lucia P. Dow, for St. Georges	1,453
For Malta:	
Ital. SS. Teresa	3,286
For Spain:	
Nor. SS. Vindegen, for Puerto Tarifa	4,226
For Cuba:	
Amer. Schr. Anna R. Heldritter, for Sagua	945
Amer. Schr. Nancy Hanks, for Cienfuegos	1,772
For Colombia:	
Amer. Schr. Mabel Gale, for Puerto Colombia	1,087
For Virgin Islands:	
Amer. Schr. Stephen R. Jones, for St. Thomas	6,421
For France:	
Br. SS. Skipsea, for Marseilles	3,545

Hampton Roads Pier Situation

N. & W. piers, Lamberts Pt.:	Sept. 20	Sept. 27
Cars on hand.....	1,255	1,282
Tons on hand.....	71,058	69,763
Tons dumped for week.....	112,753	68,333
Tonnage waiting.....	5,500	7,407
Virginian Ry. piers, Sewalls Pt.:		
Cars on hand.....	1,816	1,760
Tons on hand.....	107,040	106,150
Tons dumped for week.....	130,026	97,720
Tonnage waiting.....	9,748	7,110
C. & O. piers, Newport News:		
Cars on hand.....	1,897	2,240
Tons on hand.....	98,435	118,675
Tons dumped for week.....	86,822	63,170
Tonnage waiting.....	3,205	2,750

Pier and Bunker Prices, Gross Tons

PIERS			
	Sept. 22		Sept. 29†
Pool 9, New York.....	\$5.25@	\$5.60	\$5.15@ \$5.50
Pool 10, New York.....	4.85@	5.10	4.75@ 5.00
Pool 11, New York.....	4.50@	4.75	4.35@ 4.75
Pool 9, Philadelphia.....	5.30@	5.60	5.30@ 5.60
Pool 10, Philadelphia.....	4.60@	5.15	4.65@ 5.20
Pool 11, Philadelphia.....	4.30@	4.70	4.35@ 4.70
Pool 1, Hamp. Roads.....	5.00@	5.15	4.90@ 5.00
Pools 5-6-7 Hamp. Rds.	4.30@	4.60	4.50
Pool 2, Hamp. Roads.....	4.75@	4.90	4.60@ 4.70

BUNKERS

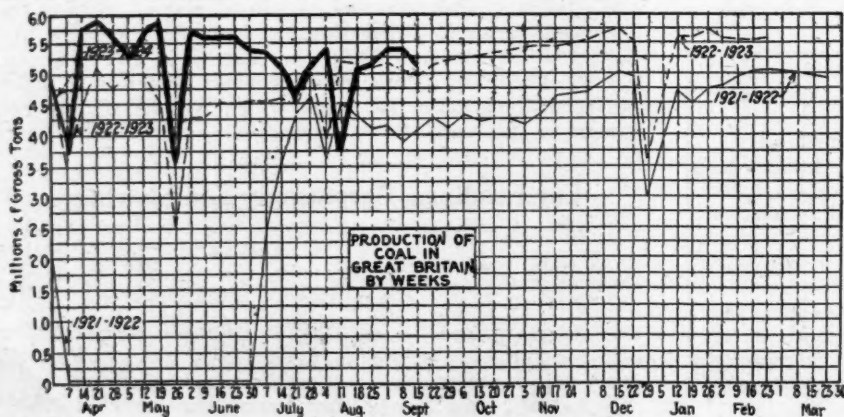
Pool 9, New York.....	5.55@ 5.90	5.45@ 5.80
Pool 10, New York.....	5.15@ 5.40	5.05@ 5.30
Pool 11, New York.....	4.80@ 5.05	4.65@ 5.05
Pool 9, Philadelphia.....	5.60@ 6.00	5.60@ 6.00
Pool 10, Philadelphia.....	5.05@ 5.45	5.10@ 5.50
Pool 11, Philadelphia.....	4.65@ 5.00	4.65@ 5.00
Pool 1, Hamp. Roads.....	5.00@ 5.15	4.90@ 5.00
Pool 2, Hamp. Roads.....	4.75@ 4.90	4.60@ 4.70

Current Quotations British Coal f.o.b. Port, Gross Tons

Quotations, by Cable to *Coal Age*

	Sept. 22	Sept. 29†
Admiralty, large.....	28s. @ 28s. 6d.	28s.
Steam smalls.....	19s.	20s.
Newcastle:		
Best steams.....	24s. @ 24s. 6d.	24s.
Best gas.....	24s. @ 24s. 6d.	24s. @ 24s. 6d.
Best bunkers.....	22s. @ 23s. 6d.	21s. 6d. @ 22s.

† Advances over previous week shown in heavy type, declines in italics.



News Items From Field and Trade

ALABAMA

Convicts employed in the Banner Mines of the Pratt Consolidated Coal Co. staged a strike or riot Sept. 10 during which mining machines, pumps and other machinery in the workings were considerably damaged by being dynamited. The rioters held full sway in the mines for twenty-four hours, during which time production was completely stopped and the output was under normal for several days account of the damaged equipment. The rioting was instigated by white convicts recently sent to Banner from Aldrich Mines and was based on alleged dissatisfaction with the warden and physician, tasks imposed and other complaints. The mining officials have no jurisdiction over the convicts, being worked by the State Board of Supervisors, and are fed, clothed and worked under the complete control of the convict department.

The County Coal Co., with mines in the Cahaba Valley, near Birmingham, on the Central of Georgia Ry., is reported considering the opening of an additional slope and the construction of a washery. Clem Sussong, of Birmingham, is general manager, and William F. Sussong, Carnegie, Pa., president.

The Black Creek Coal Co. is reported to have sold one of its mines at Nauvoo, to the Monroe-Warrior Coal Co., which also will operate another mine of the Black Creek Co. under lease at the same point.

Truck No. 1 of the Birmingham Mine Rescue Station, is now making a tour of the mines and industrial works in the district, giving instructions in mine-rescue and first-aid work. James M. Cobb, foreman, is in charge of the work.

CONNECTICUT

The Norma Company of America has placed contracts for the erection of the first unit of its new plant at Stamford, on a 17-acre plot facing the main line tracks of the New York, New Haven & Hartford R.R., adjacent to Glenbrook Station. The new plant will be equipped to manufacture Hoffmann precision roller bearings, the American rights to which, as well as to all other Hoffmann products, were recently acquired from the Hoffmann Manufacturing Co., Ltd., of Chelmsford, Essex, England. The plant also will be equipped for the expansion of the manufacture of Norma precision ball bearings.

ILLINOIS

A state charter has been issued to the Miner's Run Coal Co., of McIntyre. Its purpose is prospecting for and mining coal and the manufacture of coke. The incorporators are: Fred B. Smith, Blossburg, treasurer; W. Scott Jenkins, Blossburg, and William F. O'Donnell, Morris Run. Each of the incorporators holds 2,500 shares of stock, the par value of which is \$1.

G. Wenselmann, of the Wenzelmann Manufacturing Co., of Galesburg, is about to open a shaft mine on his farm along the Minneapolis & St. Louis Ry. The main office of the mine will be in Galesburg.

As another aftermath of the Herrin massacre the Southern Illinois Coal Co., owners, at the time, of the Lester strip mine near Herrin, is asking for a change of venue for its damage suit for \$175,000 against the County of Williamson. The company says it cannot get a fair trial in that county. Delos C. Duty, state's attorney for the county, has filed an affidavit in reply, saying: "It is my honest belief that a majority of the coal miners or members of the United Mine Workers of America themselves were not and are not in sympathy with the things that were done in and during the so-called Herrin massacre, and the majority of the citizens of Williamson County are not prejudiced against the Southern Illinois Coal Co. to such an extent that it cannot have a fair and impartial trial."

The Atomizing and Reduction Co., of Herrin, recently suffered a loss by fire estimated at \$60,000. The plant has been in operation for about three years and is one of the largest coking plants in Southern Illinois.

Fire caused damage of over \$5,000 recently at the plant of the Odin Coal Co. at

Odin. The machinery and equipment of the mine suffered to a large extent and it will be some time before the mine can again be worked. Several hundred men were thrown out of work.

The St. Ellen mine, at O'Fallon, has resumed operations after being idle for over four months. The mine is one of the oldest in the Belleville district and employs 400 men when working with a full crew.

No. 8 mine of the Madison Coal Corp., near Cartersville, will be closed down and abandoned in the next few months. The mine is a pioneer in the coal industry of southern Illinois and was operated back in the 90's by Sam T. Brush, of Carbondale, who died over a year ago. During the operation at that time a strike was called by the newly organized union men and Brush hired negro labor and private mine guards and operated the mine. Since that time the shaft has been known as the "Brush riot mine" at Cartersville. The company will dismantle and remove all machinery and equipment of value.

The Jefferson Southwestern R.R., 11 miles long, was opened for traffic Sept. 15 when trains from Mt. Vernon were run to Nason, Jefferson County, a new field north of Franklin County, where the two shafts of the Illinois Coal Corp. are down about 500 ft. The coal is approximately 700 ft. deep under the property.

The mine of the Valley View Coal Co. at Coal Valley has started operations again. The mine had been idle practically the entire summer and is now working a full crew of men.

The Chicago Coal Merchants' Association reports the receipt of more voluntary applications for membership during the past few weeks than at any previous like period in its history, as a result of its recent activities among the retail coal dealers of the city. New members in the association as well as old ones, are receiving new membership certificates of handsome design, engrossed and bearing a gold seal.

The extensions at Mine No. 4 of Donk Brothers Coal & Coke Co. which have been in progress for several months to complete the mine as originally proposed are about completed. The mine has been running three days a week, hoisting 2,000 tons daily through the airshaft. The output will be increased to 3,500 tons as soon as the main shaft is finished and gradually increased as the mine is developed.

J. C. Core, with new offices in the Continental & Commercial Bank Building, Chicago, has been appointed sales agent for the St. Louis Coal & Iron Co., with Chicago and vicinity as his territory.

Fred Trubger, formerly mining engineer with the Southern Gem Coal Corporation, with headquarters in Pinckneyville, is now working as assistant to chief engineer White of the Union Colliery Co., at Dowell.

W. G. Hughes Coal Co., Chicago, has been incorporated with a capital of \$30,000 to deal in coal mines; incorporators, C. I. Abbat, W. G. Hughes and K. R. Leva.

Plans are being considered for erecting a "coal palace" at the state fair. The "palace" would be erected in order to advertise the huge coal resources of Carbon County, which has one of the largest deposits of bituminous coal in the world.

Incorporation papers have been filed at Springfield for the Chicago Williamson Coal Co. The capital stock is \$10,000. The company will engage in buying, selling and mining coal and other fuel. W. M. Stephenson, J. S. Bash and William J. Bash are the incorporators.

The Pigeon Creek Coal Co. has removed its general offices from Chicago to Booneville, Ind. W. R. Bootz has been elected secretary-treasurer of the company. He succeeds W. F. O'Shea who resigned recently.

Bertram E. Safford, formerly assistant to Charles R. Campbell, sales manager for the John A. Logan Coal Co., has been appointed manager of the Phoenix Coal Co. with headquarters in the Plymouth building, Chicago. The latter company is owned by Pratt Brothers, of Minneapolis.

The mine of the Pratt Bros. Coal Co., near Herrin, commonly called the Jeffrey Mine, during the month of July hoisted more than 52,000 tons, a record for the shaft. The mine employs approximately 500 men. Other mines in the same district are working from one to three days per week and some not at all.

The O'Gara Coal Co. has prepared a 250-ft. motion picture film for display to the public through the agency of the retailer. The picture follows the mining process through the various steps of undercutting, loading, mule haulage to the main line, motor haulage to the bottom and hoisting. Preparation is then shown over the screens, the picking tables and loading booms and into the railroad cars.

INDIANA

Bronze medals have been received by the Terre Haute Humane Society for the two men who several weeks ago saved the life of the pony, Rex, which had been confined in a mine cave-in at Bicknell for ten days. Hope of saving the pony was abandoned by the rescue crew because it would be necessary to enlarge the hole through which the men escaped. Corn and oats had been supplied to the pony through the same pipe through which the entombed men received their food while in the mine. The larger medals are to be awarded to William Thurston and John Cottrell, two of the rescued miners, who, on learning that the rescue crew had given up hope of saving the pony, set about to rescue it and succeeded. Smaller medals, given by the American Society for the Prevention of Cruelty to Animals, were received for Ralph Manson, Peter Brown, Edward Reister, Lon Crawford and William Bailey, who assisted in the work.

The Modern Fourth Vein Coal Co. has been incorporated with a capital of \$350,000 to mine and deal in coal at Jasonville. The directors of the company are John Williams, T. G. Williams, C. W. Wenner, W. C. Clifford, F. W. Adams, O. H. Finnical and F. B. Grove.

KENTUCKY

B. Blenkinsopp, State Mine Inspector, in a recent report, stated that 30 per cent of the state mines were down. The semi-annual report, issued Aug. 7, showed that during the first six months of 1923 a total of 18,424,599 tons of coal was produced, as compared with 17,267,132 tons last year in the same period. Harlan County, or District No. 5, led with 3,888,472 tons, with 83 mines in operation, employing 8,131 men. District No. 6, comprising Letcher, Knott and Perry counties, produced 3,204,656 tons in 127 mines. Eight thousand more men are employed this season than last at the same time, there being 56,447 men employed, as against 48,000 last year. The report states that 69 mines have been abandoned or shut down temporarily this year, and the average number of days worked is 54 as compared with 69 for the first six months of 1922.

The Democratic party in Kentucky on Saturday, Sept. 8, nominated William Jason Fields, of Mt. Olivet, Carter County, to run for Governor, to succeed J. Campbell Cantrill, who died after receiving the nomination. The new nominee has been in Congress for 10 years as Representative from the Ninth district of Kentucky. It is understood that he will carry out the late Mr. Cantrill's platform, which was not antagonistic to the coal interests of the state. Charles I. Dawson, Republican nominee, also is favorable to the coal interests. Considerable interest is manifested by coal men in the nominations, as it is well understood that a hard fight will be made before the next Kentucky Legislature, early in 1924, to place a production tax on all coal mined in the state.

The Pacific Coal Co., Louisville, capital \$20,000, has been incorporated by C. D. Glass, Walter S. Lapp and J. E. Miller. Mr. Glass has been well known in the Louisville and western Kentucky districts as a coal man for years.

W. M. Jones, of Huntington, W. Va., H. B. Jones and W. S. Hamilton, Louisville, represent a syndicate that has recently bought the Kentucky, Rockcastle & Cumberland R.R., running from Heidelberg, Ky., about 28 miles through Lee, Jackson and Owsley counties of eastern Kentucky. The road was originally built to reach 27,000 acres of timberland of the Turkey Foot Lumber Co. It will be extended a quarter of a mile to the Kentucky River, where loading docks will be installed so that transfer can be made to barges for movement to Louisville and Cincinnati, and a large rail and water coal movement will be developed.

The Rockport Coal Co. of Rockport, is planning to shut down soon to install additional screens and loading booms, and while down will install concrete foundations for a crushing plant.

The Turner Elkhorn Coal Co., of Lexington, capital \$100,000, has been chartered by Joseph S. Claybrooke, John I. Claybrooke and James R. Claybrooke.

The Dawson Daylight Coal Co., of Louisville, headed by K. U. Meguire, of the Harlan Coal Co., is planning a fine operation near Dawson Springs, which will have a modern five-track tippie rated at 300 tons an hour. Contract has been let for the tippie which has been designed and will be equipped by the Morrow Manufacturing Co., of Wellston, Ohio, and with its five-track arrangement will be able to produce all the sizes now made in Franklin County, Illinois. It will be equipped with a complete washery, picking tables, two loading booms, a crushing outfit, etc.

A gift of \$1,000 to the student loan fund of the University of Kentucky has been made by the West Kentucky Coal Co., of which C. F. Richardson is president.

The Kentucky State Federation of Labor at a meeting in Frankfort last week adopted resolutions in an effort to aid the union miner, these resolutions calling on all union men to demand union-mined coal and use their influence in developing a consumption of union mined coal only.

The See See Coal Co., of Pineville, capital \$75,000, has been incorporated by R. I. Cawthorne, Lottie E. Cawthorne and E. R. Martin.

With a capital of \$100,000, the North Star Coal Co., Madisonville, has been incorporated by L. C. Oliver, E. A. Oliver and L. P. Sisk.

The Westchester Coal Co., Island, capital \$125,000, has been incorporated by I. G. Reynier, Abraham Shapiro, and Lerbert L. Spitzer.

MARYLAND

Because of the unsettled labor conditions in the Gorge's Creek region, Abell Wolman, chief engineer of the State Health Department, has withdrawn his engineering force temporarily from the study of the sanitation problems. The Health Department's mission in this region for the last nine months has been to create sentiment for the support of a district water and sewerage system which would serve the entire area. The representatives of Mr. Wolman's department had held several meetings in the district and had gained considerable support before the labor situation became acute.

MINNESOTA

A series of recommendations has been made by a committee in Minneapolis of the American Federated Engineering Societies, relating to the coal problem and how to solve it. The committee sees in coal storage and summer movement, a big relief to the present difficulties of car shortage and congested demand. The committee sees the need of financing aid which could be done through a financing agency, warehousing committee or the municipality itself.

MISSOURI

Ernest R. Sweeney, member Gray-Bryan-Sweeney Coal Co. of Kansas City, is still missing. He disappeared Aug. 30. Hope for his return has virtually been abandoned by friends and relatives, although no effort has been made to close his estate. Ben R. Sweeney, a son of the missing man, has posted a \$500 reward for authentic information as to Sweeney's whereabouts or the recovery of the body.

Drillers testing for oil south of Chillicothe on Sept. 21 passed through a fourth stratum of coal, making a total of 22 ft. passed through in the last 170 ft. of drilling. The various depths are: at 360 ft. a 6-ft. vein; at 378 ft. a 3-ft. vein, both of fine grade bituminous; at 443 ft. a 7-ft. vein of semi-anthracite and at 524 ft. a 6-ft. vein of semi-anthracite. Geological surveys indicate the coal area in this field extends over 4,000 acres two miles in length. Recently a fine grade of rock asphalt was found in that section.

A state charter has been issued to the Jenkins Fuel Co., Plainsville, with a capital stock of \$8,000. The purpose of the company is to mine, wash and prepare anthracite. The incorporators are John E. Monahan, treasurer; Michael J. Plernock and Stephen G. Plernock, all of Plainsville.

The Big River Coal Co., St. Louis, has been incorporated under the laws of Missouri for \$6,000. The incorporators are A. E. Jefferis, L. M. Jefferis and J. R. Van

Slyke. The company will produce, prepare, buy and sell coal.

The Pennsylvania Smokeless Coal Mining Co., Ebensburg, has been incorporated at Harrisburg. This company has a capital stock of \$150,000 and its purpose is to mine, sell and ship coal. The incorporators are E. M. Burns, William M. Smith and Philip N. Shettig, all of Ebensburg, and Walter D. Brown, Ebensburg, is treasurer.

NEBRASKA

Governor C. W. Bryan of Nebraska, who announced on Sept. 13 that he had gone into the coal business not only for his own but any other state, declared that with the help of the people they can save \$15,000,000 in Nebraska alone, which the "coal combine" has been heretofore taking out of the state. He further announced that he would do all possible to break "the national combine." The Governor declared that while it was the duty of the federal administration to take a hand in lowering coal prices, it was not doing so, and that the State of Nebraska would take the matter in hand, so far as that state is concerned, ultimately extending any aid to other states if requested. The Governor is buying coal at the mine at \$3 a ton, and he had announced previously that it will be sold at this price, which includes 25c. margin for freight rates and handling.

NEW YORK

Through a certificate filed in the office of the Secretary of State at Albany by Wellman, Smyth and Scofield, New York City, the name of the O'Brien-Cuttle Coal Corporation of Manhattan Borough has been changed to the O'Brien Coal Corporation.

The following important changes in the branch offices of the Maher Collieries Co., of Cleveland, have been given out: F. B. Shondell, salesman at Buffalo, has gone to Toledo to open an office for the company; O. E. Southard remains manager of the Buffalo office; David Price, traveling agent, is establishing an office for the company in Cincinnati; Ross C. Wheatly, formerly soliciting agent of the Toronto, Hamilton & Buffalo Ry., will open an office for the Maher company in Hamilton. The company produces upward of 150 cars of bituminous coal a day.

G. N. Wilson, president of the Lehigh Valley Coal Sales Co., New York City, returned Sept. 21 from a month's vacation in Europe.

The Coal Hill Mining Co. of Pennsylvania, has filed a duplicate certificate of incorporation in the office of the Secretary of State and will enter New York State with its principal office at Binghamton. The corporation will deal in coal and coke.

Mortimer E. Cooley, president of the Executive Board of the American Engineering Council of the Federated American Engineering Societies, has announced that the coal problem will be among the subjects discussed at a meeting of engineers to be held at Rochester, Oct. 12 and 13. Of chief interest will be a report of the Federation's committee on coal storage, which has been conducting a study in co-operation with 107 local committees all over the country.

OHIO

A new issue of \$1,275,000 first mortgage 6 1/2 per cent gold bonds of the Maher Collieries Co. is being made. The bonds are dated Aug. 1, 1923, and mature in equal annual instalments of \$85,000 on Aug. 1, 1924, to 1938, inclusive. The 1924 and 1925 maturities are offered on a basis to yield about 6 1/2 per cent, and 1926 to 1938, inclusive, on about a 7 per cent basis. The properties of the Maher Collieries Co. are situated in Belmont County, and consist of about 7,000 acres of coal lands. The property has six mines. The proceeds of the sale of the bonds will be used to retire current indebtedness, for additional working capital for the development of the property and that of the subsidiary, the Marcoll Coal Co.

The Supreme Coal & Coke Co., of Cleveland, has been chartered with an authorized capital of \$10,000 to mine and sell coal and to deal in coke. Incorporators are Donald Kennedy, Ellen F. Kennedy, Thomas M. Kennedy, Jr., B. J. Cummings and T. M. Kennedy.

A fire in the large storage pile of the Philadelphia & Cleveland Coal Co. at Groveport, is causing some concern among officials of that company. The fire developed several weeks ago and is not yet under control. The pile consists of about 100,000 tons of screenings which is near the power plant of the Columbus Railway, Power & Light Co. The company has stopped the purchase of slack temporarily as a result of the fire.

PENNSYLVANIA

The Philadelphia & Reading Coal & Iron Co. is planning the erection of a new anthracite washery near Shamokin.

The Pennsylvania Coal Co. has purchased between 250 and 300 vacant lots in the Green Ridge section of Scranton. Underlying the surface are vast deposits of anthracite, which the company is understood to have plans for mining after the top veins have been exposed by stripping operations.

Work has been resumed at the Audenreid Mines of the Lehigh & Wilkes-Barre Coal Co., where the men had been on strike for more than a week, due to a dispute over the split plan proposed by the company. The order to return to work was issued Sept. 28 after a meeting of the local union. The return is at the direction of the board of conciliation, which ruled that in all cases where there have been suspensions owing to disputes over contract terms the men should return and have their cases adjusted by that body. About 1,800 men were affected.

The Jordan Valley Coal Co. started active operation with fully equipped heavy steam machinery Sunday, Sept. 2. A basket picnic was held on the property between Arlington and Granite Falls.

Members of the Scranton School Board have voted to purchase from the Se-Rob Coal Co. the coal under No. 19 school for \$7,333.75. Recently the company offered to sell its right to the coal to the school district for \$9,872.85. As a result of conferences with the owners this figure was reduced \$2,539.10.

It is said that negotiations are under way for the purchase of the Manown and Gallatin mines, located on the Pittsburgh & Lake Erie R.R. in Allegheny County, following an inspection of the property by J. H. Laughlin, an agent for the Independent Coal & Coke Co., of Pittsburgh. Both mines operate tipples on the Monongahela River.

The first wage scale in central Pennsylvania for men running underground loading machines became effective recently. Machine operators are getting \$7.60 a day and helpers \$7.50. This scale was worked out primarily for two Myers-Whaley machines now doing entry loading for Peale, Peacock & Kerr in the Ellsworth-Dunham Coal Co. mine at Arcadia.

Michael Delovich, a miner, was paroled by Judge Fuller at Wilkes-Barre after being sentenced to serve one year in jail on an assault and battery charge. He told the judge that he was a good miner and was anxious to go to work as he had been idle for a long time. The judge released him on the condition that in case another strike was called that he report to court prepared to go to jail and serve sentence until work was resumed. The miner was glad to make the promise and walked out of the court house in a happy frame of mind.

Another effort, it is announced, will be started soon to extinguish the burning coal mines at Summit Hill and save the veins not already destroyed by the fire which has raged there for more than 65 years. The Drake Drilling Co. plans to sink 10-in. holes into the burning mines through which culm will be flushed. This will at least cut off air channels through which the fire might reach the Nesquehoning workings, as the flames have recently broken out anew between the Summit Hill No. 6 colliery and the Nesquehoning.

TENNESSEE

An application for an amendment to the charter of incorporation of the Kelley's Ferry Coal Co., increasing the capitalization from \$20,000 to \$25,000, has been filed in the County Court clerk's office at Chattanooga. The incorporators are A. W. Kelley, W. J. Nixon, F. L. Martin, G. W. Nixon and W. H. Pryor.

It has been announced that Pittsburg capitalists have purchased 10,000 acres of virgin coal lands from the Wedensia Coal Co., west of Rockwood, and that options have been acquired on about 50,000 acres of coal properties owned by the East Tennessee Iron & Coal Co., and located in Campbell County. These options have several months to run before date of expiration. In the meantime abstracts of titles are being made, and other investigations are under way. Developments indicate that the options will be closed, and that not less than \$2,000,000 will be expended on the Campbell County tract alone.

It is also understood that about \$1,000,000

is involved in the purchase and proposed development of the coal lands near Rockwood. The plans for this are understood to be formulating, and work of construction on some of the new industries may begin at an early date.

TEXAS

W. C. Dodd, of Malakoff, has acquired the Crockett lignite mine, near Como, and will develop it.

VIRGINIA

D. M. Thornton, president of the Norfolk-Portsmouth Freight Traffic Commission, has resigned, and his successor has not been named.

Ellis Searles, of Washington, editor of the *United Mine Workers' Journal*, addressing the Norfolk Monday Club, declared the miner wants better wages, better living conditions, and to become a better American citizen. He declared government interference prolongs the settlement of differences between miner and operator, with consequent maladjustment of the coal situation.

WASHINGTON

Halbom & Stridell, of Kelso, are developing a coal mine on the Bingham place, southwest of Castle Rock, where a vein of excellent coal has been uncovered.

WEST VIRGINIA

The report of the State Department of Mines covering the fiscal year ending June 30, 1922, which has just come from the press, shows that the total coal production in West Virginia for the period covered was 70,888,208 gross tons, a decrease of 9,873,203 gross tons, or 12.23 per cent, as compared with production during the previous year. The total value of coal produced in the fiscal year ending June 30, 1922, was \$180,764,917.65. The value of all coke sold was \$1,026,414.16. Only 175,156 net tons of coke was manufactured in West Virginia during the period ending June 30, that representing a decrease of 661,572 net tons, or 79.06 per cent.

Coal concerns recently dissolved and the charters of which have been surrendered are as follows: W. E. Griffiths Coal Co., Sullivan Coal & Coke Co., Pigeon Creek Mining Co., Hess Coal & Coke Co., Beckley Fire Creek Coal Co., Maryland Coal Mining Co., Big Vein Pocahontas Co., dissolved by decree of bankruptcy filed with Secretary of State.

W. J. Quinn has withdrawn from the Merrimac Fuel Company, of which he was vice-president, and will form other connections at Huntington.

An action has been instituted in the Circuit Court of Kanawha County by the Holden Collieries Co. against the Boone County Coal Corporation for the recovery of \$6,745.61 which the plaintiff claims is the difference between the contract rate for power the defendant agreed to furnish and the rate allowed by the Public Service Commission.

Pending repairs and improvements No. 1 mine of the Rosedale Coal Co., in the Monongalia County field, has been shut down and during such suspension contracts for output will be handled from the No. 2 plant of the company, which has just resumed operations after having been shut down for repairs. It is desired to make changes in the power system and to move the motor generator plant to a new location.

Water from the bed of Decker's Creek broke through a heading and flooded the Bretz mine of the Bethlehem Mines Corporation at Bretz, near Masontown, late in September, causing damage estimated at \$100,000.

The New River Company, one of the heaviest producers in the New River field, in which New England capitalists are largely interested, have begun the publication of the *New River Company Employees' Magazine*, devoted to the interest of employees. This magazine is published at Macdonald, general headquarters of the company in West Virginia, the first issue appearing late in September. The company has adopted the policy of inserting "suggestion" sheets in each copy so that employees may be in a position to make safety-first suggestions.

That three miners were killed Sept. 24 in an explosion at the Bentwood Mine of the Wheeling Steel & Iron Co., at Wheeling,

became known when the bodies of Joseph Birrello, Michael Corda and J. J. Carskaden, the latter a fireboss, were found buried beneath tons of coal and stone.

The report of the State Tax Commissioner covering the operation of the gross sales tax in West Virginia for the fiscal year ending June 30, 1923, shows that of a total of \$2,938,932.90 collected in the fiscal year the coal industry paid \$1,219,724.11, or 41.50 per cent of the total collected. In the year ending June 30, 1922, the first year the gross sales tax was in effect, the coal industry paid a total of \$681,196.32, or 34.94 per cent.

Having recently purchased the holdings and plant of the Rivesville Coal Co., in the Marion County field, the Edward Hines interests, of Chicago, are now engaged in perfecting plans to install up-to-date machinery that will make it possible to increase the capacity of the plant from 600 to 2,000 tons per day. Increased trackage and siding room will be provided, the Baltimore & Ohio having agreed to install additional crossovers. The Hines interests control practically 1,000 acres of Sewickley coal in the vicinity of the Rivesville plant, much of which they bought at the time the purchase of the mining plant of the Rivesville Coal Co. was consummated.

The J. D. Boone Coal Co. recently began operation near Kanawha Falls in the New River field, but the principal office of the company will be at Fayetteville, in Fayette County, where offices are being fitted up for James D. Boone, superintendent of the company and other officers.

A mine fire at fan plant No. 35 of the Consolidation Coal Co., on the West Fork River near Watson, threatened to do a good deal of damage late in September, but was extinguished within a period of 24 hours through the prompt and efficient work of fire-fighting forces under the direction of C. H. Tarleton, manager of the West Virginia Division of the company, and Frank Haas, consulting engineer.

WISCONSIN

Governor John J. Blaine of Wisconsin has directed the division of markets of the state to make a searching inquiry into coal prices and profits, and methods of coal marketing. The inquiry will be particularly directed towards a marked difference in anthracite prices in favor of the Duluth market as against Lake Michigan ports, more particularly Milwaukee, which is a large coal-receiving port with excellent harbor and superior coal handling facilities. It is held that Milwaukee is being charged on the basis of the all-rail haul, when the much cheaper lake-and-rail rate should apply.

The Smith Wrecking & Salvaging Co., of Milwaukee, is engaged in recovering about 3,000 tons of anthracite from the wreck of the steamer Frank O'Conner, which burned and sunk off Cana Island, Lake Michigan, several years ago. The coal lies in 60 ft. of water.

WASHINGTON, D. C.

The railroad relations committee of the National Coal Association for the coming year is as follows: W. L. Andrews, vice-president, Consolidated Coal Co., Baltimore; D. H. Barger, president, Smokeless Coal & Coke Co., Shawsville, Va.; C. D. Boyd, traffic manager, Hazard, Harlan and Southern Appalachian Coal Operators' Association, Louisville; J. S. Brennan, secretary, Somerset County Operators' Association, Somerset, Pa.; A. W. Calloway, president, Davis Coal & Coke Co., Philadelphia; George H. Francis, secretary, Keystone Coal & Coke Company, Greensburg, Pa.; C. S. Garland, superintendent of transportation, Hillman Coal & Coke Co., Pittsburgh; C. J. Goodyear, acting commissioner, Pittsburgh Coal Producers' Association, Pittsburgh; S. C. Higgins, secretary, New River Coal Operators' Association, Mt. Hope, W. Va.; D. F. Hurd, secretary, Pittsburgh Vein Operators' Association of Ohio, Cleveland; S. Pemberton Hutchinson, president, Westmoreland Coal Co., Philadelphia; C. H. Jenkins (chairman), vice-president, Hutchinson Coal Co., Fairmont, W. Va.; John S. Jones, president, Sunday Creek Coal Co., Columbus, Ohio; E. C. Mahan, president, Southern Coal & Coke Co., Knoxville, Tenn.; W. J. Manley, traffic manager, Logan Coal Operators' Association, Logan, W. Va.; F. M. Manson, traffic manager, W. J. Rainey, Inc., New York; J. B. Pauley, vice-president, J. K. Dering Coal Co., Chicago; C. F. Richardson, president, West Kentucky Coal Co., Sturgis, Ky.; F. A. Sweet, president, Stand-

ard Coal Co., Salt Lake City, Utah; Jonas Waffle, secretary, Indiana Coal Traffic Bureau, Terre Haute; C. E. Warner, traffic manager, Southwestern Interstate Coal Operators' Association, Kansas City, Mo.; A. R. Yarbrough, traffic manager, Kanawha Coal Operators' Association, Charleston, W. Va.; S. L. Yerkes, vice-president, Grider Coal Sales Agency, Birmingham, Ala.

CANADA

The coal production of British Columbia during August totaled 222,296 tons, an increase over July output of 9,489 tons, an over June of 36,136 tons. May production was 59,984 tons lower than that of August. Mines on Vancouver Island produced 135,947 tons in August, a little over 61 per cent and 3,316 tons more than July. The Nicola Princeton mines produced 21,591 tons, an increase of 4,870 tons and nearly 10 per cent of the total production. The Crow's Nest Pass district produced 64,758 tons, an increase of 1,303 tons and approximately 29 per cent of the total for the Province.

Engineers and construction men of the Dominion Coal Co. are bending every effort to hasten to completion the huge steel bankhead which is in course of erection on the tableland known as O'Neill's Point jutting out seaward near Bridgeport. The shaft of the new mine, known officially as Dominion No. 1B, was completed some weeks ago. The company also is sinking another shaft at Lingan.

The strike of about 1,000 coal miners at Drumheller, Alta., which began Aug. 30, is over. The men returned to work Sept. 18 in accordance with the order of the district officials of the union, who declared the strike unauthorized. The trouble arose over the attempted introduction by the miners of the O. K. list system, under which all men taken on by the operators must be O. K'd. by the union before going to work. An investigation as to alleged discrimination against men will be held.

An effort by Attorney General Nickle of Ontario to induce the Canadian National Railways to increase the 10,000-ton maximum of coal shipments from Alberta under the \$7 freight rate has proved unavailing. Sir Henry Thornton definitely stated that the 10,000-ton allotment would be the limit and that the \$7 rate would cease at midnight Oct. 31.

R. M. Young, commissioner of the Western Canada Coal Operators' Association, states that information has been received to the effect that promoters were endeavoring to establish coal companies in Ontario for the importation of Alberta coal, stating that by purchasing stock, subscribers could have coal laid down in Ontario at \$11 per ton. It is not necessary, said Mr. Young, for anyone to take shares in a company to obtain Alberta coal, as the operating mines are fully adequate to provide tonnage for any market that may open in Ontario, and he did not know of any place in Alberta where coal could be produced and sold f.o.b. cars at \$2, which is what a laid-down price of \$11 at Ontario points would mean.

D. H. McDougall has resigned his position as vice-president of the British Empire Steel Corporation after having been for 20 years associated with the constituent companies of that organization, his contract with the Nova Scotia Steel & Coal Co., of which he was formerly president, having expired.

In pursuance of the policy of putting coke on the market as a substitute for American anthracite for domestic use the British Empire Steel Corporation has appointed Frank Lucas head of the department for the sale of coke. Mr. Lucas has had wide experience and is an expert in the work of analyzing coal and coke.

Available statistics show that during the month of August the Sydney Mines collieries produced 84,900 tons of coal, the biggest output in the history of the Scotia pits. The nearest approach to this figure was made in November, 1909, when 81,000 tons were hoisted to the surface. The 99,000 mark might have been exceeded had there not been delays in shipping, etc. This is a noteworthy performance in view of the fact that the areas at Sydney Mines are submarine, and are also the oldest mine workings in the Dominion of Canada.

A ruling of the Department of Excise and Customs at Ottawa, just issued, declares that in the matter of lignite and lignite coal dust, which are now admitted into Canada duty free, such coals are now to be defined as having not less than 6 per cent moisture content on the air-dried basis. Lignite coal, it is declared, includes all grades lower than true bituminous.

Obituary

Edmund Cobb Morgan, a noted inventor of coal-mining machinery, died suddenly July 13, 1923, of heart failure at his home on Riverside Drive, in New York city. Mr. Morgan was born in Ashkum, Ill., in 1867. When about 21 years of age he obtained a position with Elmer A. Sperry, assisting in the development of an Electric pick-mining machine. This work inspired him to make an improvement of his own on a pick machine. Mr. Morgan started as a pioneer in the electric mining-machine field and was responsible for the development of the first Morgan-Gardner mining machines. Later he developed an electric mine-haulage system and built a large factory in East Chicago. Later he formed the American-Morgan Co. for the purpose of building coal-mining and loading machines. During the last fourteen years of his life Mr. Morgan's time was devoted almost exclusively to the development of coal-mining machinery, particularly the combined coal-mining and loading machine. He had several applications for patents on coal-mining machines and systems in course of preparation at the time of his death. He is survived by his wife, a daughter, two sisters and a brother.

Frank E. McChesney, one time coal dealer in Troy, died suddenly at his home Sept. 19. Mr. McChesney was born in Brunswick, Rensselaer County, and came to Troy when a young man and became associated with the John Worthington Coal Co. He later purchased this business and conducted it for five years, sold out to Craver, Cowee & Baxter and entered the firm of the Great Eastern Storage & Warehouse Co., being treasurer of the company for a number of years. For the last few years he had been connected with the teaming and trucking business of Samuel E. Jordan, Troy.

T. H. Friel, a pioneer in the development of coal mining in the Birmingham district, died from an attack of heart trouble Sept. 13. Mr. Friel was widely known and at the time of his death was operating a mine in the Blue Creek district. He was 62 years of age and was serving as Mayor of North Birmingham at the time of its absorption by the greater city.

John L. Mitchell, former Cambria County (Pa.) coal operator and at one time owner of the Pennsylvania Coal & Coke Co. operations in Cambria County, died in a Chicago hospital recently. His home was at Royalton, Ill., where he had been connected with extensive coal operations, being one of the leading operators in the Middle West. He was 74 years old.

Recent Patents

Washer for Classifying Coal, etc. Lucien Malecot, Grand Croix, France; 1,462,418. July 17, 1923. Filed March 8, 1922; serial No. 542,069.

Coking of Coal. Stewart Roy Illingworth, Brynffedwen, England, assignor to Illingworth Carbonization Co., Manchester, England; 1,426,576. July 24, 1923. Filed Aug. 29, 1921; serial No. 496,743.

Spiral Separator. Frank Pardee, Hazleton, Pa., assignor to the Anthracite Separator Co., Hazleton, Pa.; 1,462,618. July 24, 1923. Filed Oct. 10, 1921; serial No. 506,755.

Mining-Machine Bit. Newton K. Bowman, Bowdill, Ohio; 1,462,681. July 24, 1923. Filed Dec. 15, 1921; serial No. 522,578.

Clamshell Bucket Operating Mechanism. Samuel O. Nafziger, Goshen, Ind.; 1,463,090. July 24, 1923. Filed Oct. 7, 1920; serial No. 415,248.

Association Activities

At a recent meeting of the St. Louis Coal Club two new members were admitted to membership and the following committees appointed for the ensuing year: Finance, Stanley Clark, F. W. Howell, H. G. Trier; sick, C. M. Snow, J. J. Connell, C. V. Beck; legislative, E. J. Wallace, Hubert Hoffner, F. L. Keightley; membership, A. W. Loomis, John Dearness, W. E. Bridges; entertainment, J. A. Jeffries, A. H. Beddoe and Homer McDonald.

Smokeless operators of southern West Virginia held their first meeting since June in Washington a few days ago. There was a large attendance, all the smokeless fields being well represented. In view of possible

changes in rates from Pittsburgh territory, transportation matters were considered of paramount importance. The belief was expressed that if rates should be rearranged from Pittsburgh territory, as requested by Pittsburgh operators, it would have the effect of zoning smokeless coal out of many of the Western markets and steps were taken to combat the move. The association elected a special committee consisting of G. H. Caperton, of Charleston, chairman; O. M. Deyerle, of Bluefield; P. M. Snyder, of Mt. Hope, and Justus Collins, of Charleston, to draft appropriate resolutions in connection with the death of Charles C. Beury, of Charleston, one of the founders of the organization.

Publications Received

Foundry Work. By R. E. Wendt, head instructor in foundry practice, Purdue University. Pp. 206; 5x7 1/2 in.; illus. Price, \$2. In three parts. Part I covers fundamental principles of foundry work, the sizes and types of blast furnaces and the making of pig iron; part II provides instruction for practice in moulding, core-making and other parts of foundry work; part III describes the mixing and melting of metals. Published by the McGraw-Hill Book Co., Inc., 370 Seventh Ave., New York City.

Mechanics of Machinery—Part I. By Robert C. H. Heck, professor of mechanical engineering, Rutgers College. Pp. 508; 6x9 in.; illus. Price \$5. The first part of a two-volume treatise covering the whole field of motions and forces in machines. Published by the McGraw-Hill Book Co., Inc., 370 Seventh Ave., New York City.

Explosives. Census of Manufactures, 1921. Bureau of the Census, Washington, D. C. Pp. 10; 6x9 in.; tables. This report covers those concerns engaged primarily in the manufacture of explosives; it does not include those specializing in cartridges, detonators, fuses, etc.

Twenty-eighth Annual Report of the Mineral Resources of Tennessee. Department of Labor, Division of Mines, Nashville, Tenn. Pp. 135; 6x9 in.; illus.

The Department of Forests and Waters at Harrisburg, Pa., announces that a 28-page bulletin of the Coal Beds of Northern Somerset County, Pa., prepared by James D. Sisler of the State Geological Survey, is now ready for free distribution. The bulletin contains 36 analyses of various beds in different districts. The coal is valued highly for generating steam and for domestic fuel.

Traffic News

Milwaukee coal dock companies are jubilant over the decision of the Interstate Commerce Commission, upholding the system of group railroad rates established by the Wisconsin Railroad Commission. The report, which holds that the rates for intrastate transportation of soft coal from Lake Michigan docks are not prejudicial to Illinois mine operators, which has met the approval of the Commission's examiner, must yet be formally adopted by the entire Commission, but this usually is only a formality. Milwaukee dock men hold that if the plea of the Illinois coal men had prevailed, distribution from Milwaukee coal docks would have been cut down fully 50 per cent. At present Milwaukee distributes from 3,500,000 to 4,000,000 tons of coal a year. Not only does the decision protect Milwaukee's prestige as a coal distributing center but in the opinion of a leading dock man it saves soft-coal consumers about \$100,000 annually by giving them the benefit of competition between Illinois coal fields and lake distributing points.

A decision reached by several coal-carrying roads and made public at Chicago Sept. 24 to treat as empties all unbilled coal cars at mines in the daily allocation of cars may force many coal mines in Illinois, Indiana and western Kentucky to close. A slight car shortage in some of the producing fields and an accumulation of "no bills" at the mines were given as the cause. Most of the operators have sizes under lump in cars at the mines which cannot be moved because of a lack of orders. Heretofore, railroads have permitted producers to hold coal for billing without counting the cars on track against the shippers in furnishing cars for the daily run.

Reduced local coal freight rates on the three railroads entering Charleston became effective on Sept. 17. The reductions range from a high rate of \$1.26 to a minimum of

88c. from the plants in the various regions adjacent to Charleston to the industrial plants in the Charleston industrial district. S. P. Puffer, secretary of the Chamber of Commerce of Charleston, estimates that Charleston industries will be able to effect a saving of \$60,000 a year as a result of the reduction.

In an effort to avoid ordering a surplus number of cars for assignment to mines, mine owners in the Kanawha field have been asked by the Kanawha Operators' Association to order only such equipment as can be loaded out promptly; to give sufficient time to the car-distribution department where any certain class of equipment is required, to enable the car distribution department to assemble such equipment; to load all foreign cars placed at the mine in accordance with car-service rules; to advise the local car distributor on such days as mines order and are supplied more equipment than they are in a position to load so that the excess number of cars may be redistributed to mines in a position to load them on the same date. These instructions are in accordance with the policy of co-operation pledged at a meeting held on Aug. 16 at Huntington between the operators, representatives of the American Railway Association and officials of the Chesapeake & Ohio when it was agreed by representatives of four associations served by the C. & O. that they would co-operate with that line to the fullest extent in seeing that foreign-line equipment was loaded in the direction of the home line or if destined beyond that the home line could participate in the haul. As a means of reducing the number of empty cars left over daily at the mines the C. & O. has arranged to have continuous service in effect in the office of car distributors at Thurmond, Handley, St. Albans, Logan and Ashland.

Questions involved in the traffic case of the Larsen Coal Co. and the Domestic Coal Co. against the Michigan Central Ry. Co. and the Big Four Ry. Co. will be considered at an Interstate Commerce Commission hearing, to be held at Indianapolis, October 25. Examiner Carter will preside.

The North Carolina Corporation Commission is opposed to leasing the Carolina, Clinchfield & Ohio R.R. to the Atlantic Coast and the Louisville & Nashville or the Seaboard Air Line, believing that it should be made part of a "comprehensive system of railroads" serving the state.

A new railroad to be built in Monongalia County, West Virginia, by the Edward Hines interests, of Chicago, will make it possible to develop between 10,000 and 12,000 acres of Sewickley and Pittsburgh coal in the Indian Creek section of the county. The new line is to be about three miles in length and will form a connection with the Arnettsville terminal of the Indian Creek & North-eastern R.R.

Provision is to be made by the Chesapeake & Ohio for the better handling of traffic and particularly coal traffic through Ashland, Ky., by the expenditure in all of about \$2,250,000 in that city for various improvements. It is proposed to spend a part of that sum for additional terminals through which it will be possible to route freight trains including heavy coal trains from the Big Sandy Division over the Front Avenue tracks and thus relieve congestion on the main line tracks in the city. The freight station will be enlarged and additional trackage provided in the city. Approximately \$2,500,000 is being expended in the vicinity of Huntington, \$1,500,000 of which is for double-tracking the Big Sandy Division. All expenditures are a part of the road's \$37,000,000 improvement program.

Coming Meetings

American Gas Association, annual meeting Oct. 15-19, Atlantic City, N. J. Secretary-Manager, Oscar H. Fogg, 342 Madison Ave., New York City.

The West Virginia-Kentucky Association of Mine, Mechanical and Electrical Engineers will hold its annual meeting Oct. 19-20 at Huntington, W. Va. Secretary-treasurer, Herbert Smith, Robson-Prichard Bldg., Huntington, W. Va.

American Welding Society. Oct. 24-26, Pittsburgh, Pa. Secretary, M. M. Kelly, 33 West 39th St., New York City.

Harlan County Coal Operators' Association. Nov. 21, Harlan, Ky. Secretary, E. R. Clayton, Harlan, Ky.

Coal Mining Institute of America will hold its annual meeting Dec. 19, 20 and 21 at Pittsburgh, Pa. Secretary, H. D. Mason, Jr., Chamber of Commerce Building, Pittsburgh, Pa.